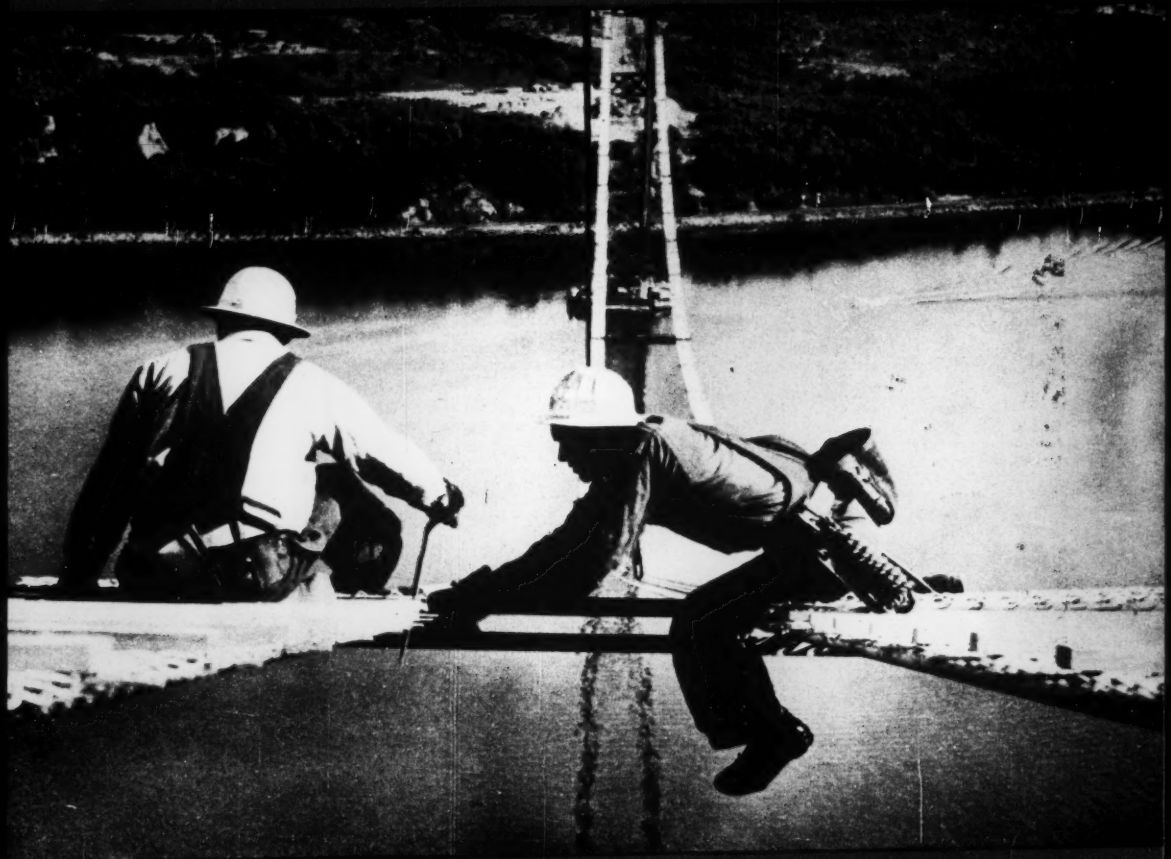
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

OCTOBER 6, 1949



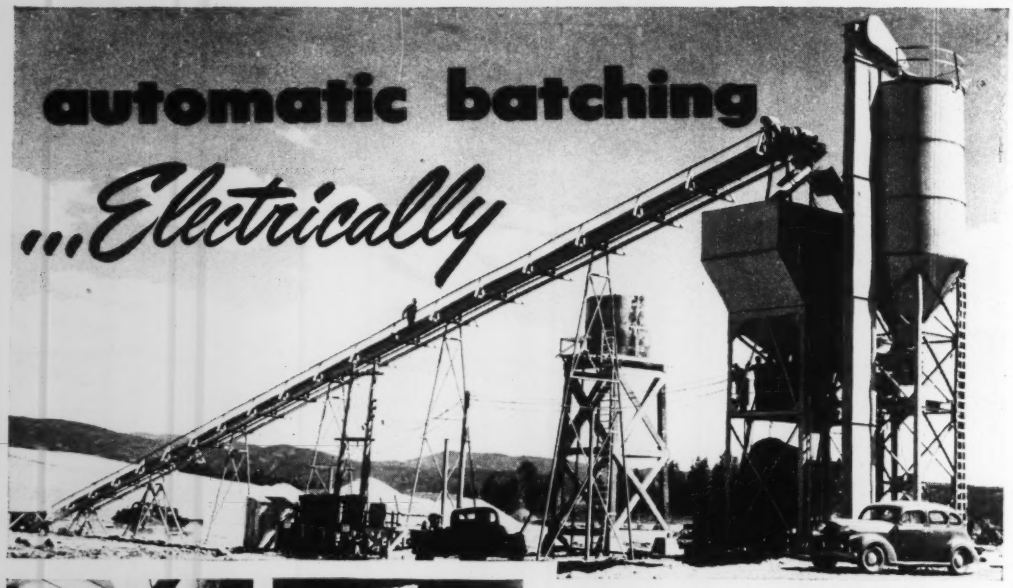
High tee ark—cable spinning starts across Tacoma Narrows

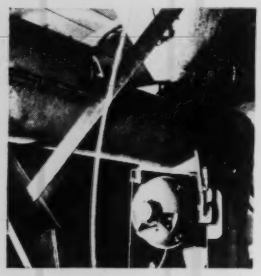
PRESTRESSING ULTRA-STRONG PIPE

• • •

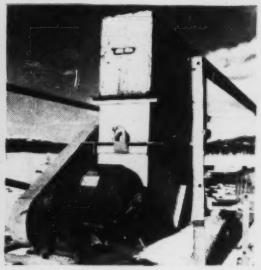
SAND AND STONE FROM SAME QUARRY

automatic batching ...Electrically





Cement from silo is fed to weigh batcher by worm screw, driven by G-E Tri-Clad motor.

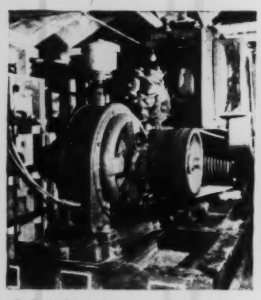


Cement elevator drive is powered by G-E Tri-Clad motor.

G-E Motors and Control Speed Concrete Placing at Granby

Granby pumping plant, operating heart of the Bureau of Reclamation's Colorado Big Thompson project, is now under construction at an accelerated pace. To help maintain this pace, Granby Constructors are utilizing electric drive wherever possible as on this Noble batch plant . . . relying on General Electric components almost entirely.

Construction equipment driven by G-E motors and control, supplied from G-E Power-distribution systems, will help you meet schedules . . . at a profit! Apparatus Dept., General Electric Co., Schenectady, N. Y.



G-E induction motor driving compressor which supplies air to batch plant and other equipment.

Bert Sandberg, Engineer for Granby Constructors, operates the G-E combination starter which controls the compressor motor.

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job at lower cost by complete electrification. Call, wire or write him now!

GENERAL ELECTRIC

660-1

NEW FACTORY BUILDING IN MASSACHUSETTS

Builders: John W. Harris Associates, Inc., New York
Architect: Lathrop Douglass, New York
Structural Engineers: Strobel & Salzman, New York
Steel Fabricator and Erector: Haarmann Steel Co., Holyoke, Mass.

This attractive structure at Chicopee, Mass., was completed recently for A. G. Spalding & Bros., Inc. The one- and two-story building contains some 300,000 sq ft of floor space, and has an abundance of clear-glass windows. In addition to its facilities for the manufacture of sporting goods, it includes administrative offices and a warehouse.

Beneath its enduring facing of red brick stands a steel framework of Bethlehem Structural Shapes.

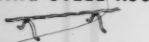
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

Bethlehem
STRUCTURAL SHAPES

★ BETHLEHEM STEEL ★

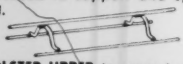
RICHMOND
REINFORCING STEEL ACCESSORIES



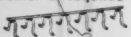
SLAB BOLSTER to support lower slab steel from form.

SLAB BOLSTER WITH PLATE to support lower slab steel on fill.

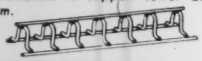
SLAB SPACER to support and space lower slab steel.



SLAB BOLSTER-UPPER to support one layer of steel above another at required distance.



BEAM BOLSTER to support lower beam steel from form.



BEAM BOLSTER-UPPER to support layers of steel, one above the other.

BAR CHAIRS to support wide spaced light steel in slab construction.

HIGH CHAIRS to support upper slab steel.

SPECIAL HIGH CHAIRS to support upper slab steel from lower mat steel.

CONTINUOUS HIGH CHAIRS to support upper slab steel from form without carrier bars.

TY-CHAIRS to tie intersecting reinforcing bars and support them above the form.

BAR-TYS to tie intersecting reinforcing bars, horizontally or vertically.

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ENGINEERED TYING DEVICES,
ANCHORAGES and ACCESSORIES
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ENGINEERING NEWS-RECORD

VOLUME 143 OCTOBER 6, 1949 NO.14

WALDO G. BOWMAN
Editor

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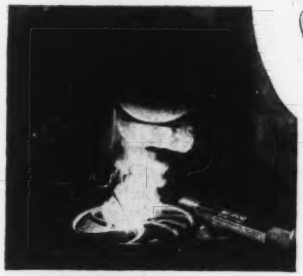
"Welding cast iron is EASY with NI-ROD"

says Jim Bengough

"I've been welding for 20 years and never thought it possible to get an electrode to work as well on cast iron as Ni-Rod does."



WELDING A CREAM SEPARATOR WHEEL. With Ni-Rod electrodes, no preheating was necessary, so distortion was kept to a minimum. The wheel hub was welded, and broken gear teeth were built up.

FILING WELDED GEAR TEETH. After building up broken gear teeth with Ni-Rod, only hand filing was required to put the wheel into usable condition.

HAY PRESS BULL PINION SAVED BY NI-ROD. A broken section was built up with Ni-Rod and ground to shape after welding.

Experienced welders—like Jim Bengough of Hensall, Ontario—recommend Ni-Rod for welding cast iron because Ni-Rod is both dependable and easy to use.

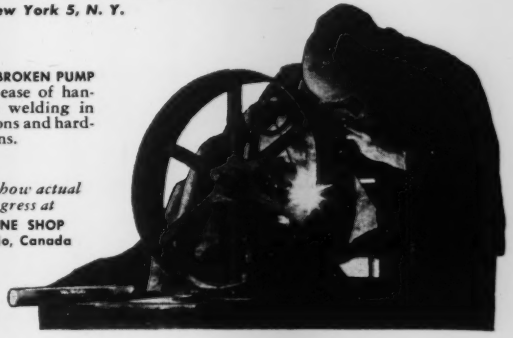
Serious breakdowns in farm machinery often call for welding cast iron parts . . . frames, broken gear teeth, wheel spokes, hitch links. With Ni-Rod* on hand, you can get laid-up machines back on the job sooner, even if you are not an expert welder.

Ni-Rod gives a stable arc in any position on either AC or DC. Preheating and post heating are seldom necessary. And Ni-Rod gives you welds that are machinable without special tools or techniques. Hand filing is often all that is needed to put a Ni-Rod welded part back in service.

Be ready to make quick, *dependable* repairs by ordering a package of Ni-Rod today. Your nearest INCO distributor stocks Ni-Rod in 3/32", 1/8", 5/32", and 3/16" sizes.

For complete information about INCO's welding materials, send for the latest catalog. *Reg. U. S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.



NI-ROD REPAIRS BROKEN PUMP JACK. Ni-Rod's ease of handling simplifies welding in awkward positions and hard-to-reach locations.

Photographs show actual jobs in progress at
JIM'S MACHINE SHOP
Hensall, Ontario, Canada

EMBLEM OF SERVICE
INCO MONEL
TRADE MARK

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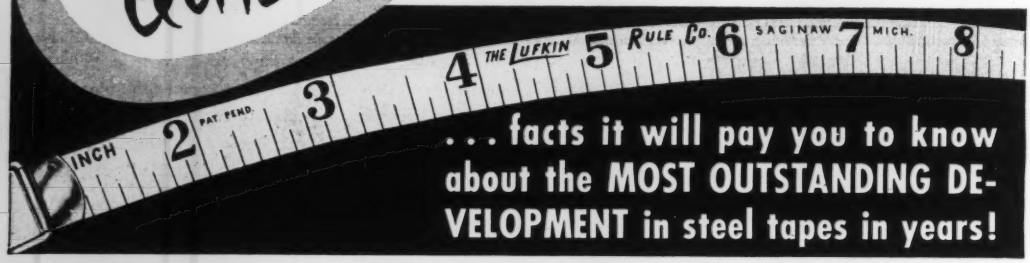
Quick Quiz ON LUFKIN CHROME CLAD STEEL TAPES



. . . facts it will pay you to know about the MOST OUTSTANDING DEVELOPMENT in steel tapes in years!

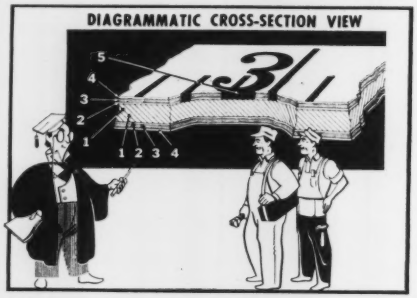
(Numerals Refer To Cross Section View)

Q. Are the markings easier to read in sun or shade?

A. Yes. Jet black markings (5) stand out sharply against the special non-glare satin finish of the heavy chrome plating (4). This finish absorbs light instead of reflecting into your eyes. Easy on the eyes—less stooping and squinting. Will not crack, chip or peel.

Q. Are the markings more durable?

A. Yes. The black markings bonded to steel are sunk below the hard, smooth chrome surface (5) thus protecting them against wear—even dragging over concrete or gravel. No metal is etched away. The markings remain easy to read even after years of rough usage.



Q. Are the lines tougher—more durable—more resistant to kinks and breakage?

A. Yes. The heavy chrome plating adds to the toughness of the hardened steel line (1). Kinking and line breakage are rare indeed.

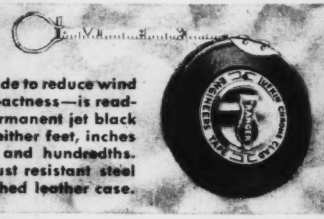
Q. Do they resist rust and corrosion?

A. Yes. A rust-resistant coating (2) plus multiple coats of electroplating (3) give remarkable protection against rust and corrosion. Years of grueling service in tropical damp, sea water, mines, oil fields and chemical plants have proven them resistant to rust and corrosion under conditions no other tapes can withstand.

Call for Lufkin Chrome Clad Steel Tapes at your dealers and prove these statements for yourself.

***Buy* steel tapes with easy-to-read markings that are durable**

"RANGER" Model... Lufkin's Chrome Clad tape specially designed for engineers. The sturdy steel line—only ¼" wide to reduce wind resistance and provide compactness—is readily detachable from case. Permanent jet black markings are available in either feet, inches and eighths or feet, tenths and hundredths. Zero falls at end of line. Rust resistant steel liner protected by hand stitched leather case.



Buy LUFKIN

PRECISION TOOLS • TAPES • RULES FROM YOUR DISTRIBUTOR

THE LUFKIN RULE CO.

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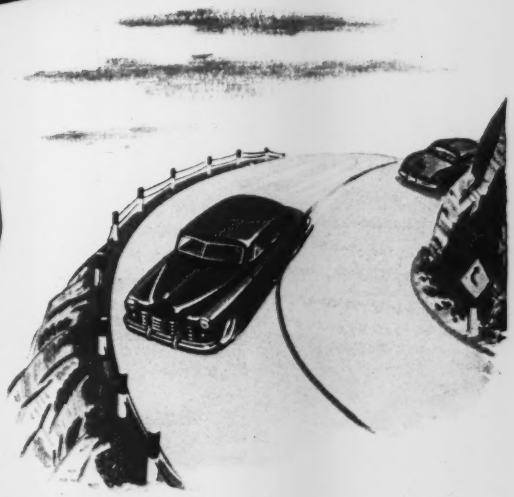
Prevent hidden decay



use chlorophenol treated Posts!

The damage termites do isn't always apparent to the naked eye. They bore from within, weaken the cellular structure of wood and instead of sound, strong posts, you have without knowing it, a weakened guard rail—the means to a potential tragedy!

Remember! A guard rail is only as strong as its weakest post. And remember too, PENTAchlorophenol, the *clean* wood preservative, gives positive lasting protection against termites and decay.

For further information about PENTAchlorophenol, write to Dow. Address Dept. PE 36A.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

DOW penta- chlorophenol

Co Operation

Building for lifelong customers, rather than for immediate profits, has always been the policy of the entire organization of LeTourneau Distributors. They honestly believe that the sale of a piece of equipment is not the conclusion of their effort, but is just the beginning. You can count on every man in their organization to work toward closest customer cooperation by: (a) putting the right tool on the right job; (b) helping the owner and operator obtain maximum production with it; and (c) supplying courteous, prompt service throughout the lifetime of every LeTourneau machine in the field.

Whenever you need help in job planning and operation, want service, or information on application of construction equipment, call your LeTourneau Distributor. We're proud of his record as a partner in our business . . . proud of the job he is doing. You'll find him quick to respond . . . conscientious, impartial . . . always ready to serve you to your best interest . . . a good friend to know.

R. G. LeTourneau, Inc.

Peoria **Illinois**

1 Job Cost Planning

To attain closest cooperation among customer, distributor and factory, your LeTourneau Distributor and company field engineers are always available to help study project requirements . . . analyze costs . . . and suggest, impartially, the most efficient methods of getting the work done.

2 Expert Inspection

Upon arrival of equipment at the job, your LeTourneau Distributor, or factory service experts, thoroughly check, inspect and test every LeTourneau machine to make sure that it is delivered to you in A-1 condition . . . ready to fulfill every promise of lowest-net-cost-per-yard operation.

3 Operator Instruction

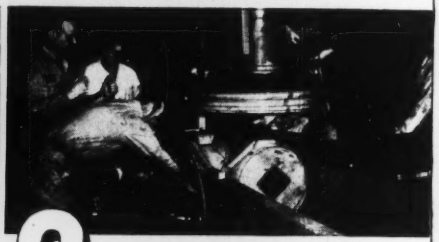
To assure you maximum production efficiency from your men and machines, factory-trained Distributor men give your operators practical, first-hand instruction on correct care and operation of equipment . . . and help set up proper lubrication, service, and preventive maintenance schedules.

4 Application Counsel

Cooperation extends out into the field, onto the job, where Distributor and LeTourneau engineers help plan haul routes, cut and fill areas, and assist in establishing overall job operations for the most efficient application of this high-speed, rubber-tired excavating, hauling and dozing equipment.

5 Prompt Parts & Service

Adequate stocks of genuine parts, prompt delivery, and efficient shop and field service facilities are, of course, major obligations of your LeTourneau Distributor. Regardless of age of equipment, or location of future jobs, you can always depend on this service, whenever and wherever needed.



6 Factory-Trained Staff

At the LeTourneau factories, Distributor personnel learn the latest methods and equipment by working on actual machines. These factory-trained Distributor men assure top-quality service in the field . . . and prove Distributor cooperation in providing closest possible attention to your needs.

LET SEE US FOR LOWEST-NET-COST-PER-YARD

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AMERICAN BRIDGE COMPANY

= a job done *Right*

AMERICAN Bridge Company undertook a major project involved in the relocation of the Pennsylvania Railroad's tracks to prepare for the building of the Conemaugh Dam, a flood control project for the Ohio River Valley.

American Bridge fabricated and erected the five double track spans and three underpasses on this project, involving approximately 7,000 tons of structural steel.

We cite this project as additional proof that where you see the sign "Fabricated and Erected by American Bridge Company," you'll see a job done efficiently.

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ST. LOUIS · SAN FRANCISCO · TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Erecting the Pennsylvania Railroad's Spruce Run Bridge for the Corps of Engineers, United States Army. Here a combination crane-derrick car is placing one of the 100-foot, 85-ton girders for this double track, through plate girder bridge.

AMERICAN BRIDGE
UNITED STATES STEEL

THE CONSTRUCTION WEEK

GOOD HEALTH—BUT—Construction industry leaders who met to take the industry's pulse at the AGC's recent governing and advisory boards session found the patient's health generally good. Business conditions had stabilized, efficiency had increased, bids were generally 10 percent under last fall's peak. But, agreed the pulse-feelers, the patient would have to guard against certain ills that might threaten its current condition. Of particular danger, they felt, are: Trends by some governmental bodies toward force-account construction; wage-setting practices of agencies of the federal government that disrupt normal bargaining procedures; awarding of work in separate contracts that eliminate the need for a general contractor.

BY QUITTING TIME—With Senate and House majority leaders now talking of a Nov. 1 adjournment, Washington observers are moved to re-appraise the chances of still-pending legislation. Among their guesses are:

Basing Points—The O'Mahoney Bill is in a conference committee, snarled in amendments designed to protect small business. It may not get clear in time for passage.

Minimum Wage—Conferees have only to settle on language affecting about a million borderline workers, to complete actions on raising the wage floor from 40 to 75 cents.

Science Foundation—House will go along with the Senate bill, if leaders get around to bringing the measure up for a vote.

Appropriations—Half the money for running the government is still tangled up in House-Senate squabbling, including money for Army Engineers' civil functions and Interior.

WHO WATERS THE RICE?—Army Engineers and the Bureau of Reclamation turned up yet another in their series of debates over jurisdiction—this time over authorization for projects in the Grand Prairie region and the Bayou Meto Basin of southeastern Arkansas. Flood control for Bayou Meto and increased water supply for Grand Prairie's rice fields are the objectives. Army seems to have a clear field, since Bureau of Reclamation activity is limited by law to 17 states—not including Arkansas. Reclamation men, nothing daunted by the law—have labelled the project "the camel's nose under the tent", and "a threat to the integrity of long established Federal Reclamation policy"; they claim they can get into the picture via Section 8 of the Flood Control Act of 1944, which put reclamation use of water under the Secretary of the Interior.

ROAD MONEY PLENTIFUL—Financial news brought ample confirmation that there's plenty of money available for well-planned, much needed highway work. In quick succession, the Pennsylvania Turnpike Commission announced sale of $77,500,000 bonds to finance extension of its road westward to Ohio; the New Jersey State Supreme Court upheld the constitutionality of revenue-secured financing of a $230 million, 118-mi. toll turnpike; Virginia sold a $19,000,000 revenue bond issue to finance river ferry and bridge improvements.

FOR MORE HIGHWAY STUDIES—Members of the National Petroleum Association were told recently by Alexander Fraser, head of the Shell Union Oil Corp., to get behind drives for statewide surveys of highway needs. Fraser expects great help in solving highway traffic congestion to come from legislative studies such as have been made in several of the more progressive states. Support long-range, comprehensive highway planning, he said, which is combined with sound administrative practices and realistic policies.

GASOLINE TAX AT WORK—A two-year-old, two-cent raise in gasoline taxes is given credit by Kentucky highway engineers for the state's current high standing in the matter of road mileage and construction expenditures. And the added tax, it appears, hasn't cut into the public's use of the roads: Kentuckians and visitors bought 14,000,000 more gallons of gasoline during the first six months of 1949 than they did in the same period of 1947—before the increase in price added by the tax.

PUSH FOR HOOVER REPORT—The citizens' committee organized some months ago to push for adoption of the Hoover recommendations for streamlining the government plans to push back into the headlines about December. Strategy is to revive interest, just as Congress comes back for next year's session. The campaign will open with a big meeting in Washington, at which both Mr. Hoover and President Truman are expected to speak.

THREE ON THE AISLE for 'TOP PERFORMANCE'

These tickets are typical of the many that W&T Equipment must *earn* during production. They are evidence that keen-eyed inspectors have tested and re-tested each part before accepting it for *your* job. They are thus your passes to "TOP PERFORMANCE" — the hit show of proven, dependable and economical chlorination in which W&T Chlorinators have starred for over 35 years.

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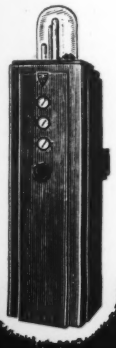
W&T manufacturing facilities are equipped to handle, in stride, the precision required in chlorinator manufacturing.

W&T engineers select equipment from a complete line of chlorinators, hand tailor it to each job and then test it under actual job conditions before shipment.

W&T's field organization is conveniently located and always available to supervise the installation of equipment and render prompt service and technical assistance.

For your next job requiring chlorination or chemical feeding, say "W&T" and get a front row seat to "TOP PERFORMANCE."



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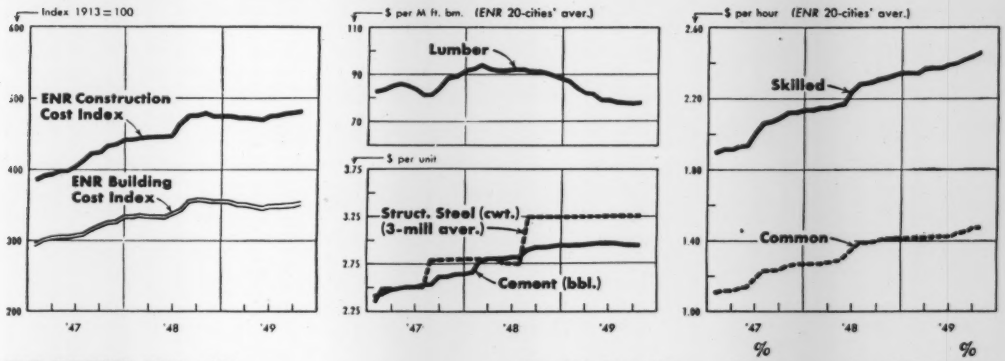
OCTOBER CONSTRUCTION BUSINESS REPORT



ENR INDEXES (1913 = 100)	Oct. '49	Sept. '49	% Change	Oct. '48	% Change
Construction Cost	480.43	479.78	+0.2	480.21	0.0
Building Cost	353.52	351.98*	+0.4	357.07	− 1.0
MATERIAL PRICES (20-cities' average)					
Cement, bulk, per bbl	2.940	2.949	−0.3	2.950	− 0.3
Structural Steel, (3-mill aver.), per cwt	3.250	3.250	0.0	3.250	0.0
Sand, per ton	1.993	1.981	+0.6	1.977	+ 1.0
Lumber, 2x4 Fir, per M ft. bm	85.838	85.544	+0.3	98.818	−13.1
Lumber, 2x4 Pine, M ft. bm	75.450	74.250	+1.6	84.683	−11.0
Common brick, per M	27.763	27.763*	0.0	27.213	+ 2.0
Ready-mixed concrete, per c. y.	10.279	10.287	−0.1	10.116	+ 1.6
Structural Clay Tile, 3x12x12 per M	131.474	131.827	−0.3	126.935	+ 3.5
WAGE RATES (20-cities' average)					
Common	1.478	1.478	0.0	1.413	+ 4.6
Skilled (aver. 3 trades)	2.467	2.453	+1.0	2.332	+ 5.8
Bricklayers	2.721	2.721*	0.0	2.529	+ 7.6
Structural Ironworkers	2.442	2.405	+1.5	2.315	+ 5.5
Carpenters	2.236	2.238	0.0	2.177	+ 2.7

CONTRACTS AWARDED (thous.)	September 1949 (5-weeks)	September 1948 (5-weeks)	% Change†	Nine Months 1949 (39-weeks)	Nine Months 1948 (40-weeks)	% Change
Total U. S. (ENR reported)	$810,309	$665,417	+ 22	6,171,136	5,276,297	+20
Private	403,478	304,631	+ 32	2,908,916	2,519,511	+18
Public	406,831	360,786	+ 13	3,262,220	2,756,786	+21
Federal	90,541	77,803	+ 16	825,636	757,412	+12
ENR Const. Volume Index, '13 = 100	291	240	+ 21	286	250	+14
NEW CONSTRUCTION CAPITAL						
Total	1,374,997	220,881	+523	4,980,988	5,080,187	+ 0.5
State & Municipal Bond Sales	202,568	135,551	+ 49	2,161,464	1,428,587	+55
Corporate Security Sales	165,652	85,330	+ 94	1,812,747	1,600,379	+16
Federal (non-federal work)	385,000	.....	.....	385,000	492,289	−22
Federal (federal work)	621,777	.....	.....	621,777	1,558,932	−60

Half of Fed. Approp. 1949 passed to date.

MATERIAL SHIPMENTS & LABOR SUPPLY	August (A) July (J) 1949	1948	% Change	Eight Months (8) Seven Months (7) 1949	1948	% Change
Cement, thous. bbls., Bu. of Mines	19,321(J)	20,994(J)	− 8	109,621(7)	112,511(7)	− 3
Fabr. Struct. Steel, thous. tons, AISC	172(A)	176(A)	− 2	1,320(8)	1,302(8)	+ 1
Lumber, mil. ft. bm., NLMA	2,371(J)	3,132(J)	−24	17,033(7)	20,762(7)	−18
Lumber Prod., mil. ft. bm., NLMA	2,432(J)	3,430(J)	−29	17,482(7)	21,042(7)	−17
Contract Const. Employ., thous. BLS	2,333(A)	2,384(A)	− 2	2,028(8)	1,961(8)	+ 3

*Revised. †Computed on weekly average basis.

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A Job of Selling

SANITARY ENGINEERS and public health officials have a selling job to do on clean-stream laws. Industry must be enlightened as to who really profits from pollution abatement; chambers of commerce must be shaken loose from ill-founded fears that sanitary controls will discourage industrial growth. Too many misconceptions exist, and will continue to exist, as long as industrial interests remain unaware of the real purposes and effects of clean-streams programs. Industry—and particularly new industry just entering an area—will benefit directly from laws insuring an adequate water supply that needs no expensive treatment. Only industries ignorant of the long-range benefits will shy away from states or watersheds rigidly controlling waste disposal. Others, fully aware of the intent of these controls, will find them an attraction. Industry stands to profit by clean-stream legislation; it is the job of state sanitary engineers to make this fact known.

Twice What We Spend on Roads

THE COUNTRY WASTES $2,800,000,000 in highway accident losses each year. That is the estimate of Norman Damon, vice-president of the Automotive Safety Foundation. The amount is so large as to be almost beyond comprehension. Its staggering size becomes more obvious when it is realized that if half of it could be saved and used to build safer roads our road building program would be doubled and our growing deficit of adequate roads would soon be but a memory.

Mr. Damon cites "upgrading of presently employed highway traffic personnel and the recruiting and training of such personnel in the next decade" as holding the greatest promise of a drastic cut in the hidden costs of automotive transportation. He adds that "it is no mere coincidence that for several years in succession the states and cities standing at the top in the national traffic safety contests have been those with highly trained personnel, particularly in the familiar three E's of Enforcement, Engineering and Education."

There can be no doubt as to the importance of upgrading traffic control personnel. It is an objective to be worked for constantly. But it is of necessity a long-range objective, one that will not show results for some years to come. The "three E's" on the other hand can show results at an earlier date, especially enforcement and education. As Mr. Damon observes, in states and cities in which well-trained forces keep up active campaigns of enforcement and education the safety records are well above average.

Stricter and more intellingent enforcement can show results almost immediately: There should be a hard-hitting drive on drunken driving. Too many innocent people are being slaughtered every week by cars driven by people whose reactions and powers of control have been deadened by too much alcohol. Revocation of licenses for long periods is the best route by which to reduce this source of accidents and death.

And the potentialities of engineering in cutting the loss due to accidents must not be overlooked. Building safety into highways is the chief way in which the readers of this journal can contribute to accident reduction. On new construction it can be done by the application of the principles of sound geometric design that have been developed by highway engineers—easier curves and grades, better sight distances, elimination of left turning, separation of opposing traffic lanes and other well known means.

There are, however, thousands of miles of streets and roads on which major structural changes cannot be made, at least for many years. Here the engineers have a responsibility for working with the traffic officers in the compilation and analysis of the details of accidents. Once frequency of accidents has turned a spotlight on a particular point on a highway, careful engineering study is indicated to determine what causes the high frequency and what can be done to minimize the risk if the chief cause of trouble cannot be eliminated. For example, it may be found that channeling will make a considerable reduction in accidents at major intersections where separation is not practical at the present time.

There is no easy road to a reduction of the appalling annual loss due to accidents, but every effort should be centered on making the greatest possible progress along the routes that are available.

Buried Trouble

VISITORS TO NEW YORK these days are being treated to a sight of one of the great untouched problems of municipal housekeeping everywhere. Forty-second St., New York's great crosstown thoroughfare, is being resurfaced by an operation that should be simple and fast, but which will take months because of the complications caused by the system of buried utility piping that is encountered. On dozens of other streets in New York, and in every city in the land, openings made to effect repairs to these buried conduits are delaying traffic and increasing municipal operating expenses. No city official is unaware of the medieval character of our under-street utility systems or of the procrastination that permits this buried trouble to persist. But none appears to have the courage to attack the problem with the vigor and intelligence that is required.

The Steel Strike and Ryerson Steel Service

As these lines are written * the announcement has just been made by the president of the CIO United Steelworkers that the strike postponed from July 15th, is now in force.

Naturally, the duration, extent and consequences of this stoppage in steel production are unpredictable. But for the sake of our national economy and the welfare of all we hope for a speedy and satisfactory solution.

Fortunately, during the past few months, the condition of Ryerson steel inventories in our thirteen great plants had improved materially. Orders for high quality carbon, stainless and alloy steels were being filled promptly. And during this emergency they will continue to be filled, at our established prices, while our stocks last.

Likewise continued will be our long established policy of providing prompt, personal service whether an order calls for a single bar or a carload. So contact your nearest Ryerson plant for any steel requirements—and we will do our level best to take care of you.

* Saturday, October 1.

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ENGINEERING NEWS-RECORD

OCTOBER 6, 1949 VOL. 143 NO. 14

Push multi-million plans for pipeline development

New transmission facilities authorized this year by the Federal Power Commission will add two billion cu. ft. of natural gas capacity—Other pipeline expansion

A continuing supply of money for construction of fuel pipelines is indicated by the financing operations now in progress and by recent authorizations by the Federal Power Commission. Biggest current financing is by the Tennessee Gas Transmission Co. Proceeds will be used, along with other cash resources, for expansion of the firm's natural gas pipeline system which now extends from the Rio Grande Valley of Texas into West Virginia, a distance of 1,364 miles.

During the first half of this year, the Federal Power Commission authorized construction of natural gas transmission facilities designed to add approximately 2 billion cu.ft. of daily delivery capacity to the individual pipeline systems of the United States. The authorized facilities involve an estimated total construction cost of about $374 million, and will add about 4,900 miles of new pipeline to the nation's natural gas systems.

The largest single authorization during the six-month period was for the construction by Trunkline Gas Supply Co. of a pipeline extending from Texas to Nebraska. This project, which involves 1,521 miles of pipeline and seven compressor stations with units aggregating 44,800 hp., is to be built at an estimated cost of $84,340,300, and is designed to deliver 250,-million cu.ft. of natural gas per day to Northern Natural Gas Co. for distribution in Nebraska, Iowa, South Dakota and Minnesota.

Since Feb. 7, 1942 (the date when the present certificate provisions of the Natural Gas Act became effective), the commission has authorized a total of 27,500 miles of pipeline and 1,603,-000 hp. in compressor units at a total estimated cost of $1,628,511,300.

Other pipeline activity

Transcontinental Gas Pipeline Corp., Houston, Tex., has asked the power commission for authority to expand the capacity of the Texas to New York City pipeline it is building. It wants to increase capacity from its present 340 million cu.ft. to 505 million cu.ft. The estimated cost is $50,386,000.

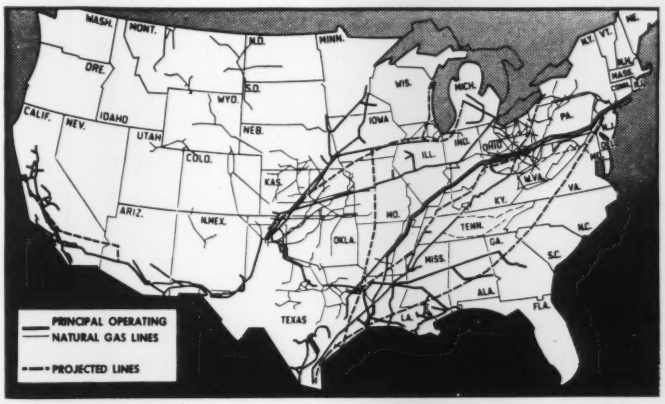
A. O. Smith Corp., Milwaukee, Wis., has a contract for fabricating 800 miles of 16-20 in. oil pipelines for Imperial Oil Ltd. for a line through Alberta and Saskatchewan to Wisconsin. The estimated cost of the line is $40,000,000.

Excavation work is proceeding rapidly on the Salt Lake City-Boise leg of the $6,000,000 gasoline, oil and diesel fuel pipeline being built from the Salt Lake region to the Pacific Northwest. Pipe is already being laid on some sectors of the 320-mi. line by the Smith Contracting Corp. of Ft. Worth, Tex., which is handling the Salt Lake-Burley, Idaho, section. The Burley-Boise section is being built by Oklahoma Contracting Co. of Dallas, Tex., and Grafe-Callahan Construction Co. of Los Angeles.

The Board of Transport Commissioners of Canada has approved plans of the Interprovincial Pipeline Co. of Canada to build a 1,150-mile pipeline from the Alberta oil fields to Superior, Wis. The cost is estimated at $90,000,000.

Vice-President W. T. Nightengale of Mountain Fuel Supply Co. reported this week the firm's new 20-in. gas line from Coalville, Utah, to Salt Lake City, should be completed by late October.

The $1,750,000 project is being rushed to insure sufficient gas for the 1949-50 winter in Salt Lake City, supplementing the present line extending from the Church Buttes Field in Wyoming. The lines will bring the Salt Lake area 134,000,000 cu.ft. of gas daily. Wide World photo.



Proposes U. S. funds for grade crossing work

A proposal for a $100,000,000 federal appropriation for grade crossing elimination projects in U. S. cities was made at the recent American Railway Engineering Association's meeting at Greensboro, N. C., by Frank T. Miller, chief engineer of the Atlantic and Yadkin Railway.

Mr. Miller's suggestion, which he will endeavor to have endorsed by the Association of American Railroads, is that such an appropriation should be earmarked by the government as for use solely in urban areas. The funds should be allocated to cities by state budget bureaus, bypassing state highway commissions.

Two states facing financial crisis because of lack of highway funds

Missouri and Illinois are among those that expect difficulty in matching federal aid—Increased gasoline tax considered

Carl W. Brown, chief engineer of the Missouri State Highway Department, says that state is rapidly approaching a serious crisis in highway maintenance and construction.

Mr. Brown told newspapermen that by next July, unless additional state revenue for highways become available, the department will have depleted its wartime accumulated reserve which at one time was $18,000,000, and be unable to match federal funds allotted to the state.

He also indicated that if additional state funds do not become available, through an increased gasoline tax or otherwise, the department will have to curtail its present plans for maintenance and reconstruction of major highways.

Present income—it amounted to $35,000,000 in the last fiscal year—is providing a net of about $8,000,000 for construction work, Brown said. This is the amount left after expenditures of maintenance, bonds retirement and interest, administration, payments to other state departments and gasoline tax refunds.

But the federal government, under a congressional act of 1948, has allotted $12,750,000 a year to Missouri for the fiscal year which is ending June 30, 1950.

On the basis of current income and present expenditures, this means that, beginning in the fiscal year starting next July 1, Missouri will have only about $8,000,000 to match an allotment of $12,750,000.

Increased gas tax proposed

In the meantime, Governor Forrest Smith plans to ask the General Assembly this month to call a special referendum election on a bill to increase the state gasoline tax, if the attorney general holds that the legislature has authority to do so.

A bill to increase the tax from 2 to 4 cents a gallon was passed by the General Assembly and signed by the governor.

The effective date of the law would be Oct. 14, unless held in abeyance by the filing of referendum petitions to submit the matter to the voters.

Illinois is another state that is experiencing similar difficulties in matching federal aid funds. Although the state was included for more than $20,000,000 in a recent announcement from Washington that $450,000,000 in federal aid for road construction is ready for distribution, it won't have the use of this money at least until after the legislature meets in 1951, C. M. Hathaway, chief state highway engineer, points out.

The reason, he said, is the state's present financial inability to fulfill the requirement of matching the federal allotment on a 50-50 basis. The same situation, Hathaway pointed out, applies to an additional $20,000,000 made available to Illinois last December.

The state can use the $40,000,000 by providing a similar amount any time up to 1953, after which the federal assistance grant will lapse.

Engineering firms picked for New Jersey Turnpike

Eight engineering firms have been selected by the New Jersey Turnpike Authority to do the detailed design and engineering work on the authority's projected 181-mile toll highway, according to an announcement by Paul L. Troast.

The authority is now negotiating for the sale of $230 million in bonds to finance the work and it is hoped that actual construction can start before the end of this year.

To speed the design work, the turnpike has been divided into seven sections with one firm of engineers to be engaged for each of six sections. On the remaining section, which involves a large amount of bridge work, two firms are to be employed, one for the work on the bridges and one for the highways.

For the three sections north of New Brunswick the following firms will be retained: Ammann & Whitney, of New York; Edwards & Kelcey, Frederick R. Harris, Inc., O. J. Porter & Co., Associated, of Newark; Fay, Spofford & Thorndike, of Boston; and Howard, Needles, Tammen & Bergendoff, of New York.

For the four sections south of New Brunswick these firms have been retained: DeLeuw, Cather & Co., of Chicago; Parsons, Brinckerhoff, Hall & MacDonald of New York; J. E. Greiner Co., of Baltimore; and Gannett, Fleming, Corddry & Carpenter, Inc., of Harrisburg, Pa.

Some of these firms participated in the preparation of preliminary plans and estimates for the highway under the direction of Charles M. Noble, chief engineer of the turnpike authority. Traffic studies were made by Coverdale & Colpitts, New York.

A description of the proposed turnpike is to be published in an early issue of this journal.

Yorktown bridge contracts are awarded

The Virginia State Highway Commission has awarded two contracts totaling $7,114,943 for construction of the 3,750-ft. double leaf swing span bridge across the York River at Yorktown.

To the Massman Construction Co. and the Kansas City Bridge Co. of Kansas City, Mo., went a $4,690,232 contract for the bridge's substructure. Virginia Bridge Co. of Roanoke won a $2,424,711 contract for the superstructure. The contracts went to the low net bidders, with bids based on unit costs.

Contract awards for the York River bridge followed the sale of $19,000,000 in toll revenue bonds to Lehman Brothers and Blyth & Co. of New York City. The bonds will finance construction of the bridge, and will be used to purchase the James River bridge system near Newport News and the Chesapeake Ferry system which operates across Hampton Roads, Virginia.

Apprentice bricklayers win prizes in Minn.

During the recent Minnesota State Fair, more than 150,000 persons, including contractors, architects, journeymen bricklayers and the general public, visited the apprentice bricklayers' competition sponsored by the Structural Clay Products Institute, the Associated General Contractors of Minnesota, and the Minnesota State Conference of Bricklayers.

Prizes were won as follows: First prize; $300, Wilfred Hoffman of St. Cloud; second prize, $150, Jerome Carboy, St. Paul; and third and fourth prizes totaling $150, David Formo, Fergus Falls, and Charles Giblette, St. Cloud.

The judges' scores never showed a greater spread than 11 points out of a possible 100 among the contestants.

Large skyscraper group planned for Pittsburgh

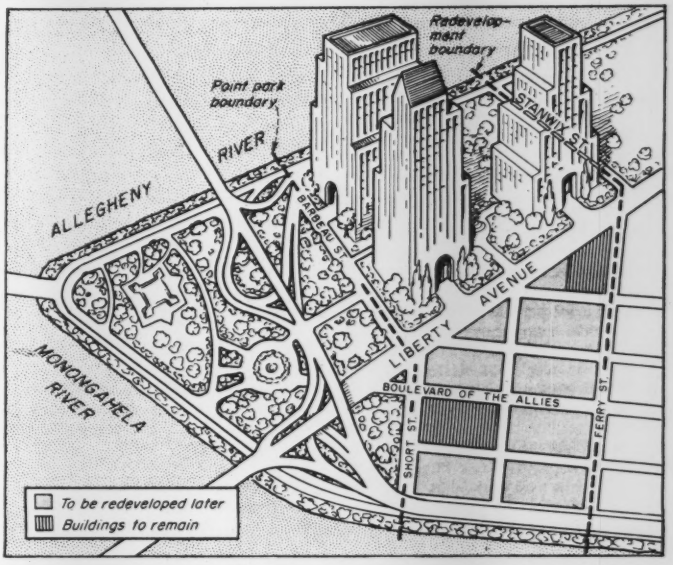
Plans for "Gateway Center," to start with a $50,000,000 project financed by Equitable Life Assurance Society and including three 20-story office buildings, to be erected in Pittsburgh, Pa., adjacent to the city's proposed Point Park, were made public last week. Completion is set for 1952.

City Investing Company's Robert Dowling of New York City, adviser on the project, named it "Gateway Center" and calls it "the equivalent of Rockefeller Center, but far more modern and released from the strait-jacket of closely adjacent sidewalks and streets."

Mayor David L. Lawrence, chairman of the Urban Redevelopment Authority, said the project will give Pittsburgh the "most modern business center in the world, and along with other redevelopment programs will check today's flight of business to the suburbs."

The center will occupy 23 landscaped acres—an area two blocks square—in downtown Pittsburgh between Liberty and Stanwix Streets, the proposed Point Park, and Duquesne Way along the Allegheny River.

It is reported that the initial buildings of "Gateway Center" will be built by Starrett Bros. & Eken of New York. The skyscrapers will have a steel frame and limestone and brick exterior. General specifications are being set up by a board of design composed of specialists.



Equitable plans purchasing the project site area through Pittsburgh's Urban Redevelopment Authority, at cost. Mayfair Hotel, Elks Lodge and Pittsburgh Parking Garage will be torn down. Only the Pittsburgh Press building, Joseph Horne Co.'s parking garage, and a redesigned Wabash building will remain in the area.

Liberty Avenue, a main downtown shopping artery, will be widened; Penn Avenue below Horne's will be eliminated. Either trolley tracks will be relocated, or buses substituted.

The Conemaugh Dam flood-control project partly influenced Equitable Society's choice of the site in Pittsburgh.

Propose big plan for Missouri's Meramec basin

A $100,000,000 plan for flood control, recreation, soil conservation and public health for the Meramec River basin in Missouri has been made public by the Meramec Co-operative Investigation Field Committee, of which Wesley W. Horner, St. Louis consulting engineer, former president of the ASCE, is chairman.

The cooperative investigation was undertaken by the federal department of Agriculture, Interior, War, the Federal Power Commission, and Public Health Commission. The Missouri conservation, agriculture and health bureaus were also represented. No money for the plan has yet been appropriated from any source, although reservoirs planned by the Corps of Engineers, U. S. Army, have been authorized by Congress.

A basic feature of the program is the provision for reservoirs near Sullivan, on Bourbeuse River near Union, and on Big River near Cedar Hill, the estimated cost being $45,250,000.

These results are looked for by the proponents of the plan when and if it is carried out:

Elimination of flood damage

Rehabilitation and conservation of land

Enhancement of recreation opportunities

Conservation of fish and wildlife

Improvement of health conditions

Improvement and stabilization of the general economy of the whole area.

It is said that within the Meramec basin floods now cause an average annual damage of $600,000.

Wider bridge openings to lessen flood damage

In the Missouri Supreme Court recently 36 Carroll County landowners and tenants won $20,585 from the Wabash Railroad Co., the court having upheld the Carroll County Circuit Court in a decision that the railroad's bridge over the Wakenda River causes flood conditions because the bridge openings are too small.

First contract has been let for Nile River work

A contract has been let for the first dam and power plant in a scheme for development of the White Nile River in Africa, according to a recent dispatch to the *New York Times* from London.

This report says that the Uganda Electricity Board has awarded a $10,000,000 contract for a storage dam and power plant at Owen Falls, the outlet of Lake Victoria, to a syndicate headed by the internationally known engineering firm of Christiani & Nielsen, which has offices in Copenhagen, London and New York. Seven British and Dutch firms are included in the syndicate.

Work on the dam at the outlet of Lake Victoria is expected to start in two months. It will raise the level of that great natural reservoir one meter, making possible the storage of 162,000,000 acre-ft., or five times the capacity of the lake behind Hoover Dam. Thus it will be the largest storage reservoir in the world.

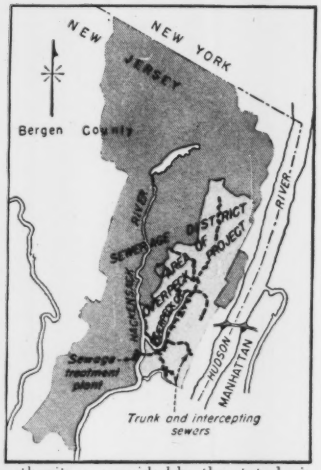
Work begins on Bergen Co. joint sewerage project

With the recent sale of $11,800,000 of its bonds, the Bergen County, N. J., Sewer Authority is in a position to go ahead with the Overpeck Valley joint sewerage works project which will serve the following communities in that New York suburban area: Hackensack, Teaneck, Englewood, Tenafly, Leonia, Cliffside Park, Ridgefield Park, Fairview, Fort Lee, Palisades Park, and Cresskill.

Construction contracts covering more than 99 percent of the proposed project have been awarded in an aggregate amount of $9,302,000. Actual construction work has started on several of these contracts and groundbreaking ceremonies were held on Sept. 10.

This project is the outcome of study and consideration by municipal officials for many years, and has been the subject of a dozen formal reports by various engineers and state agencies since 1928. All definitely indicated lower costs for participation in a joint project as compared with separate municipally-owned treatment plants.

Since the appointment of a sewer authority as provided by the state legislature, progress has been continuous, and has now culminated in the beginning of actual construction work.



Consulting engineers for the project are Bogert-Childs Engineering Associates at 624 Madison Avenue, New York 22, N. Y.

Big N. C. works program planned for next 3 years

Governor Kerr Scott, of North Carolina, says that "by including available funds and expected expenditures it is probable that North Carolina and its subdivisions and semi-public organizations will invest close to $750,000,000 in public works during the next three years."

He said more than a half billion dollars is now available to state government agencies for use in public improvements and that more than $200,000,000 has been provided for improvements planned by local government units and other semi-public organizations.

"Many of these items," he said, "are the backlog accumulated during the war and postwar periods, and are expected to be supplemented by additional expenditures of even greater amounts during the next two or three years."

In addition to the $200,000,000 recently made available in bonds for rural road construction, around $73,000,000 a year is expected to be available for extension and improvement of the highway system; $50,000,000 in state aid has been made available to counties for school construction; a $7,500,000 port-development program is planned at Wilmington and Morehead City; and a permanent improvements program for state institutions, involving $72,000,000 appropriated by the 1949 state legislature and $50,000,000 in 1947, will be spent largely during the next two years, while around $10,000,000 is expected to be spent on local hospitals during the next few years.

Montana highway employes to get much higher pay

The Montana state board of examiners has approved a new wage and personnel classification schedule for state highway department employes. It boosts pay in some instances as much as $400 a month, but the average raise is $50 to $75 a month.

Under the new schedule, state highway engineers now draw $833 to $1,000 monthly, instead of the former $525 to $600.

The next classification, division chiefs and assistants to the state highway engineer, advanced to $625-$725 monthly, from the old $450-$525 range.

Senior assistants and similar engineers will get $550 to $625, compared to the former scale of $400 to $450. Assistants and similar types of engineers are raised to $475-$550 from the old scale of $350-$400.

Conservationists oppose federal basin authorities

Devoting their three-day sessions largely to discussions of the dangers of Federal Development of U. S. River Basins, members of the National Water Conservation Conference met at Chicago recently.

The five-year-old organization, which has headquarters in Washington, D. C., has as one of its specific purposes opposition to federally-controlled river basin agencies that are empowered to disregard state and local government authority.

Speakers told the 135 delegates of the dangers of the group of federally-created river valley authorities now being considered in three bills under discussion by Congress. Another feature was a panel discussion of stream-pollution control, conducted by A. H. Wieters, U. S. Public Health Service; J. L. Quinn, Jr., chairman of the Ohio River Valley Water Sanitation Commission; J. H. Allen, executive secretary of the Interstate Commission on the Delaware River Basin; Seth Hess, director, New York, New Jersey and Connecticut Interstate Sanitation Commission, and Walter J. Shea, secretary, New England Interstate Water Pollution Control Commission.

Durham board lets contract over labor union protest

The Board of Education of Durham, N. C., has rejected an attempt by labor union to have a low bid thrown out because of alleged past differences between the contractor and unions.

Charging the contractor, the P. S. West Construction Co. of Statesville, N. C., with being biased against labor, five officials of the Durham Building Trades Council (A. F. of L.) recently appeared before the board to protest awarding a contract for the construction of an elementary school building. They contended that West's low bid of $199,000 was only about $3,000 below the next bid and that the second low bidder should get the contract.

Union leaders charged that the West firm has done faulty work on the construction of the Rocky Knoll school building, but the company, backed up by the architect on the project, said only some sections of a wall had to be replaced after being damaged by high water accompanying a hurricane which recently hit the Durham area.

The West firm was backed at the hearing by representatives of the Carolinas Branch, Associated General Contractors of America.

Sewage disposal financing discussed

Financing of sewage disposal and stream pollution abatement projects presents a problem because of increased costs and the present bonded indebtedness of communities. New methods of underwriting the costs by spreading them out over a longer period of time and enlisting federal aid must be found if the present intensified program is to continue.

This was one of the outstanding themes presented to a panel on sewage disposal and stream pollution at a recent Greater Philadelphia-South Jersey conference on planning and economic development.

The problem has been placed among those at the top of the agenda when the Board of Governors formed as a result of the Conference holds its first meeting early in December.

Optimistic reports of achievement in the field were also made to the conference panel—particularly the progress being made by Philadelphia in its sewage program.

Thomas Healey of Camden's department of public works said the problem confronting New Jersey communities in the bi-state anti-pollution program is that under orders of the New Jersey court the costs of sewage systems and treatment plants must be kept within the ability to pay of the communities with slender or heavily pledged resources.

He emphasized the problem by pointing out that Camden's plan for a complete system, including expansion of the old Baldwin's Run plant, abandonment of the Fairview plant and construction of a new, high-capacity plant in the south section along the Delaware River, faces serious financial problems.

A $15,000,000 program

At first planned to cover a 6-year construction period at an estimated cost of $9,500,000, Healey said the estimated cost of the program now is $15,000,000. He said that if the construction is to be kept within the taxpayers' ability to pay it must be spread over a longer period than originally planned, or help must be obtained from some agency such as the federal government.

Francis Friel, Philadelphia consulting engineer, said the present methods of financing the construction and installation of sewage disposal systems results in costs so high that municipalities find it difficult to win approval of bond issues. He also said that construction costs had gone up 197 percent over 1940 costs.

Judge Grover C. Ladner, Philadelphia, told the meeting that if the present rate of progress is maintained, within four or five years the Delaware River will become the clean stream that anti-pollution advocates have fought for during the last quarter of a century.

Thomas Buckley, Philadelphia public works director, said that the city's entire sewage treatment program will be completed by 1953, that $28,000,000 of work is now under contract and in addition "we've got plenty of money to finish the job."

Inter-community cooperation

Pennsylvania, New Jersey and Delaware state officials, together with those from the nine counties and various municipalities agreed on a joint program of cooperation and mutual assistance in the solutions of all problems concerning sewage disposal and stream pollution projects.

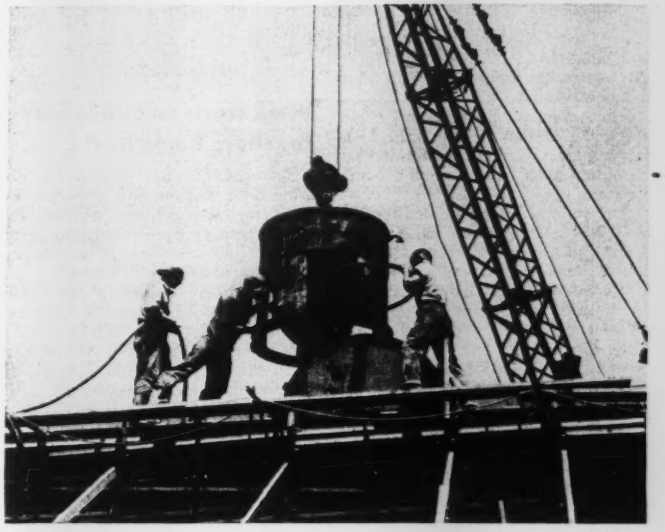
Other subjects discussed at the meeting included the need for expanded highway arteries; and a continuous high speed transit line between Philadelphia and South Jersey. A board of governors for the group is being formed. Brig. Gen. Brinton G. Wallace has been designated chairman, and the following country chairmen have been named: Philadelphia, Victor F. Sheronas; Bucks, Wallace G. Murfit; Chester, Robt. W. Wolcott; Camden, J. G. Wilson; Burlington, Gen. Donald Armstrong; Gloucester, R. R. Jackson; and Mercer, Mary G. Roebling.

Seek Yadkin River survey to avoid power shortage

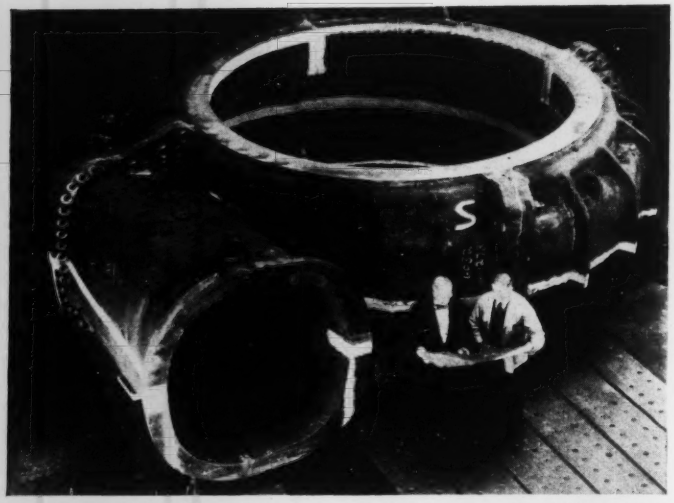
An advisory committee named by Governor W. Kerr Scott of North Carolina to promote flood control and hydro-electric projects has recommended that a resurvey be made of the Yadkin River so that provision for hydroelectric power may be added to proposed flood control projects. It hopes to present for approval a statewide policy on river projects affecting flood control, development of rivers and streams, erosion control, stream pollution and generation of power.

Congress has authorized the construction of two dams on the Yadkin for flood control only, and the original proposal, which was opposed by power companies and farmers in the area, also called for hydroelectric development of the stream.

Governor Scott said the U. S. Department of Interior has informed him that North Carolina is faced with a power shortage within the next few years. The department indicated that eight or ten hydroelectric dams are needed in the state to meet the threat.



PLACING CONCRETE at the rate of 40 cu. yd. per hour, F. H. McGraw and Co. of New York is building a six-story reinforced concrete warehouse for Kimberly-Clark Corp. in Neenah, Wis. Shores for floor slabs are adjustable to varying ceiling heights.



IRRIGATION PUMPING will be the assignment of the pump for which this huge casing was cast. With four other units, it will go into the Tracy Pumping Plant of California's Central Valley Project. Cast in four parts by the Farrel-Birmingham foundry, this casing weighs 121,050 lb. It will be incorporated into an 84-in. vertical volute pump with capacity of 350,000 gpm. when pumping against normal head of 197 ft. at 180 rpm. Metal has 60,000 psi. strength. Each pump will be driven by a 22,500 hp. electric motor. Impellers are of 145 in. dia.

Illinois has big road plans, $41 million worth by '51

A total expenditure of about $41,418,000 for road construction in Illinois up to the end of June, 1951, is indicated, according to Charles P. Casey, state director of public works and buildings. About $17,300,000 of this represents federal aid fund allotments to Illinois.

The program, prepared by Casey and C. M. Hathaway, chief state highway engineer, has been submitted to Governor Adlai E. Stevenson for final approval.

The proposed total expenditure includes $18,229,000 for 319 miles of federal aid routes in the state's primary system outside of cities; $16,442,000 for 37 miles of federal aid routes within cities; and $6,726,400 for 76 miles of resurfacing on the primary system with state funds alone, of which $5,000,000 is for rights-of-way, and $810,000 for construction of motor truck weighing stations to assist in enforcement of load limit regulations on state highways.

The biennial construction program is exclusive of an additional $40,000,000 worth of road improvements on work carried over from last year and contract awards since last January. Funds for the new program are not now available and projects included were based on estimated revenue for the remainder of the biennium.

Forty-four Illinois counties are included in the program for highway improvements of various types. A total of $12,714,000 has been earmarked for further development of the superhighway system within Cook County.

Work starts on 6-lane road to relieve Bronx traffic

Construction has started on the New York section of a two-state express highway designed to ease the heavy traffic on the Boston Post Road. Eventually the expressway will be part of the New England Thruway.

The six-lane project in the Bronx will run three miles from the Bruckner Boulevard at the Bronx and Pelham Parkway along Baychester Ave. to East 222d St., then northeast through undeveloped property and across a tip of Pelham Bay Park to the Westchester County line. It will provide a streamlined continuation of Bruckner Boulevard, a main feeder in the east Bronx to Manhattan via the Triboro, the Willis Ave., and the Third Ave. bridges.

The cost of this work, to be paid by state and federal funds, is approximately $13,500,000.

AEC signs Blaw-Knox to design test reactor

The Atomic Energy Commission has signed a contract with the chemical plants division of the Blaw-Knox Construction Co., Pittsburgh, Pa., for architect-engineering services for a materials testing reactor.

The contract is on a cost-plus-fixed fee basis, with the cost estimated at about $1,870,000, according to L. E. Johnston, manager of the AEC Idaho operations office. Total cost is estimated at close to $20,000,000. The contract provides for engineering design of the reactor and for the preparation of detailed specifications and also complete cost estimates. Plans are to be complete by late 1950. The reactor will be based on research and development work of the Oak Ridge National Laboratory and the Argonne National Laboratory, and will be used at the newly planned Arco, Idaho, reactor testing station.

The primary purpose of the new reactor, according to AEC, will be to test various reactor construction materials under intense neutron bombardment. It will also play a vital part in the development of atomic plants for the production of power and also atomic engines for propulsion of ships and possibly aircraft.

Walter H. Aldridge wins 1949 John Fritz Medal

Walter Hull Aldridge, for more than 30 years president of the Texas Gulf Sulphur Co. and a trustee of Columbia University, has been awarded the John Fritz medal for 1949—the highest in the engineering profession.

Mr. Aldridge is cited as "engineer of mines and statesman of industry who by his rare technical and administrative skills has augmented the mineral production of our country and Canada."

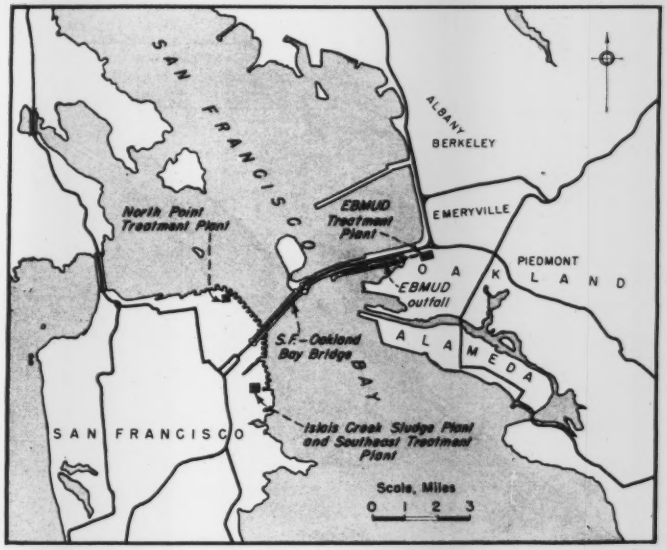
The John Fritz medal and certificate are presented not more often than once each year "for scientific or industrial achievement" in any field of pure or applied science. The award was established in 1902 as a memorial to the great engineer and steel maker whose name it bears, and is jointly sponsored by the founder societies of civil, mining, mechanical and electrical engineers. The roster of John Fritz medalists includes the names of some of the world's most illustrious engineers and scientists—Westinghouse, Alexander Graham Bell, Edison, General Goethals, Orville Wright, Marconi, Sperry, Hoover, Pupin, Kettering and others.

San Francisco seeks bay pollution end

Two more steps have been taken in the San Francisco Bay Area in $61,500,000 worth of projects designed to end raw sewage pollution of the bay by late 1951.

On the San Francisco side, ground has just been broken for a $4,486,000 sludge treatment plant at Islais Creek. The plant, being built jointly by MacDonald, Young & Nelson and Morrison Knudsen Co., is a major unit in San Francisco's $38,000,000 sewage treatment project. It is scheduled for completion in May, 1951. Other units include an $8,289,525 plant at North Point, already under construction, and a southeast plant on the Islais Creek site, to cost around $4,000,000, for which bids will be called late this year. Raw sewage will be treated at the North Point and southeast plants and the sludge pumped to the Islais Creek plant for processing into a commercial fertilizer base.

In the $23,500,000 East Bay sewage project, contracts totaling $2,954,988 have just been awarded for building an outfall sewer unit. Healey-Tibbits Construction Co. entered a low bid of $1,267,071 for building the sub-marine section, and the joint venture of Ben C. Gerwick Co., Inc., and George C. Pollock Co. made a low bid of $1,687,916 for the land-borne section. The construction calls for a 15,000-ft. sewer ranging 8 to 9 ft. in diameter from a proposed treatment plant near the eastern approach of the Bay Bridge into the deep water of the bay between Yerba Buena Island and the Oakland shore.



Already under construction on the proposed East Bay treatment plant are the main pumping station and grit chambers. Stanley H. Koller has the $572,387 contract to be completed late in 1950. When the pumping station is constructed, the interceptors will be started and the sewage pumped deep into the bay to relieve the situation until the treatment plant is finished, probably late in 1951. It is expected that bids for this treatment plant will be called within the next six or eight months.

A low bid of $6,059,408 by Peter Kiewit Sons' Co. for section 5 and 6 of the south interceptor of the East Bay project was rejected. (ENR Sept. 15, p. 31). As soon as changes in the plans and specifications have been made and alternates entered to attract more favorable bids, this section of the south interceptor will be reopened for bidding.

NEWS BRIEFS

New Massachusetts Highway – Governor Paul Dever, of Massachusetts, has announced that the State Public Works Department will start construction of the $3,500,000 highway from Sturbridge to the Connecticut state line in the fall. New construction will parallel Route 15 and will meet Connecticut's new Wilbur Cross Parkway which, with the Merritt Parkway and the Hutchinson River Parkway, gives a high-speed route to New York City.

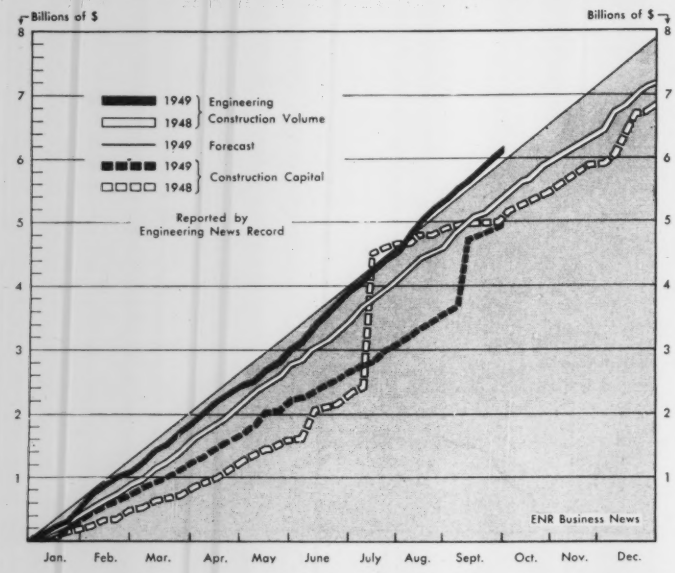
To Protect Alaska Water—An Alaska water pollution board has been organized, in accordance with legislation passed by the last session of the territorial legislature, to protect Alaskan waters from pollution and to establish standards of water purity for safeguarding public health, fish and wildlife, recreation and industrial development. Gov. Ernest Gruening is chairman of the board.

564-ft. High Dam—Official height of the arch-gravity Hungry Horse Dam in northwestern Montana, has been set at 564 ft. following consultation with engineers in the Chief Engineer's office of the Bureau of Reclamation in Denver. Only Hoover Dam, 726 ft high, and 602-ft. high Shasta Dam, in California, will outrank Hungry Horse in height. Official height of the dam is determined by the difference in elevation between the lowest concrete in the dam foundation, including shafts, and the crest of the structure.

Proposed Bridge—Voters in Youngstown, Ohio, will decide on a proposed $1,700,000 Division St. bridge bond issue at the Nov. 8 election. The Division St. bridge would be extended approximately 2,500 ft. from the present bridge over the B. & O. tracks.

Costly Accident—A bridge across the Snake River near Pasco, Wash., was destroyed by fire recently when its oil-soaked wood and asphalt deck was ignited by a blazing blanket dropped from a passing car. The blanket, wrapped around a radio on the car's rear bumper, caught fire from the car's exhaust. Deck was destroyed and steel badly warped although some of the steel might be used for a new structure, according to George Stevens, bridge engineer for the Washington state highway department. Traffic has been re-routed to a ferry downstream until nearer landings can be constructed. Replacement may take two years and $2,000,000.

CONSTRUCTION BUSINESS



September awards go 22% above '48

Heavy engineering contract awards averaging $162 million a week were reported to ENGINEERING NEWS-RECORD in September, 22 percent above the volume in September 1948, but 17 percent under August.

Total private awards for September averaged $80.7-million a week, 32 percent higher than last year, while public awards of $81.4 million were 13 percent higher.

Commercial building of $56 million a week for the month was 55 percent above last year, due mainly to large-scale private residential and apartment building at a $43.9 million weekly rate. This private housing volume tops February, formerly peak housing month of 1949, by better than 13 percent, and September of last year by a whopping 57 percent. Industrial building averaging $18.4 million for the month is 4½ percent higher than a year ago, though the volume did drop to only about half of August's $37.2 million weekly.

Public contract awards in September consisted of $63.3 million state and municipal construction, and $18.1 million federal—state and municipal up 12 percent, and federal 16 percent. Weekly public building awards of $30.4 million top those of last year by 36 percent; highway awards of $20.6 million are up two percent; sewerage contracts of $4.9 million are up 55 percent; and bridge awards of $8.4 million are 87 percent higher. September earthwork and drainage awards on the other hand declined to $9.5 million, 8 percent below a year ago, and waterworks to $2.7 million, 55 percent lower.

Middle Atlantic states chalked up the biggest contract record for the month,—$51 million weekly—which is not far below August's peak $58 million for that region. The Far West dropped from $33.7 to $18.9 million during the same month.

New construction money averaged nearly $275 million a week in September, as federal construction appropriations of $385 million for state highway-aid and $621.8 million for agencies passed Congress. Non-federal money from municipal and corporate security sales averaged only $73.6 million a week, lowest this year.

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD—SEPTEMBER, 1949

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs — Waterworks, excavation, drainage and irrigation,* $28,000; *other public works* $50,000; *industrial buildings,* $68,000; *other buildings,* $250,000

Five Weeks — Thousands of Dollars (000 Omitted)

	September, 1949						U.S. Cumulative Nine Months		% Change	
	New England	Middle Atlantic	Mid-South	West of Mississippi	Far West	Total U. S.	1949 (39-weeks)	1948 (40-weeks)	'48-'49 Aver. Wk.	Canada Sept. '49
Public Works										
Waterworks	657	548	3,112	2,917	2,853	3,222	13,309	160,609	161,400	+ 2	1,014
Sewerage	1,381	2,232	2,430	3,543	2,767	12,088	24,441	198,416	169,156	+ 20	1,234
Bridges	2,377	25,560	5,039	2,612	3,239	3,481	42,308	252,410	218,045	+ 19	386
Earthwork and waterways	408	4,464	4,696	745	23,633	11,452	47,398	430,414	402,530	+ 10	531
Streets and roads	2,988	31,940	19,406	10,578	28,786	9,420	103,118	723,548	800,545	— 7	3,605
Public buildings, residential	9,473	3,280	2,148	1,637	1,371	1,887	19,796	309,299	107,526	+195	6,650
Other public buildings	9,064	38,814	16,800	16,138	34,016	17,250	132,082	938,377	718,572	+ 34	11,013
Unclassified	883	3,150	3,507	2,219	7,773	6,847	24,379	249,147	179,012	+ 43	2,048
Total public	**27,231**	**109,988**	**57,138**	**40,389**	**106,438**	**65,647**	**406,831**	**3,262,220**	**2,756,786**	**+ 21**	**26,481**
Federal government (included in above classifications)	393	20,317	6,830	9,732	33,077	20,192	90,541	825,636	757,412	+ 12	10,109
Private											
Bridges					415		415	3,918	6,032	— 34	200
Industrial buildings	1,576	20,687	10,296	15,220	40,922	3,389	92,090	792,023	738,120	+ 10	7,588
Com'l. buildings, residential	7,115	103,338	28,775	30,240	29,815	20,168	219,451	1,340,606	1,081,208	+ 27	6,132
Other commercial buildings	2,286	21,068	9,249	12,515	10,996	4,567	60,681	446,590	366,352	+ 25	3,086
Unclassified	301	746	4,268	1,370	23,197	959	30,841	325,779	327,799	+ 2	675
Total private	**11,278**	**145,839**	**52,588**	**59,345**	**105,345**	**29,083**	**403,478**	**2,908,916**	**2,519,511**	**+ 18**	**17,681**
Total Engineering Construction:											
September, 1949 — 5 weeks	**38,509**	**255,827**	**109,726**	**99,734**	**211,783**	**94,730**	**810,309**	.....	.....	.....	**44,162**
August, 1949 — 4 weeks	19,891	232,314	124,293	94,980	175,141	134,797	781,416	.....	.....	.....	56,863
September, 1948 — 5 weeks	41,297	161,615	98,073	76,541	185,539	102,355	665,417	.....	.....	.....	69,875
Nine Months — 1949	**269,475**	**1,608,481**	**911,018**	**782,770**	**1,634,329**	**965,063**	.....	**6,171,136**	.....	**+ 20**	**458,814**
Nine Months — 1948	251,527	1,433,988	818,641	645,231	1,385,123	741,787	.....	.....	5,276,297	.....	377,201
% Change '48 to '49	+10	+15	+14	+24	+21	+33	.....	.....	.....	.....	+25

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 66, went to press.)

Generating Plant and Rural Electric Lines—Dominion Power Co-operative, Chase City, Va., plans 34,500 kw. steam generating plant on James River, near Scottsville, Va., and 888 mi. rural distribution lines, substations and other generating facilities in Charlotte County, $14,320,000.

Gas Pipe Line—Montana-Dakota Utilities Co. and Montana Gas Pipe Line Co., Minneapolis, will build by own forces 340 miles gas pipe line from Worland Field, Washakie County, Wyo., to Fallon County, Mont., at estimated cost $7,000,000.

Road—Government of Newfoundland, St. John's, N. F., plans road across island between St. John's and ferry terminus of Portoux Basques, at about $8,000,000 to $10,000,000.

Apartments—Sam Minskoff & Sons, New York, will construct garden-type housing development to be known as Grant Village in Syracuse, N. Y., estimated cost $5,000,000. Sargent, Webster, Crenshaw & Folley, Syracuse, are architects.

Hospital—Sisters of St. Joseph, Detroit, will soon let contract for 5-story hospital at Detroit, to cost $4,000,000. Maguolo & Quick, Detroit, are architects.

Bridges and Roads—Pennsylvania State Highway Department, Harrisburg, Pa., received low bid for constructing continuous steel-deck truss and I-beam viaduct in New Kensington, Westmoreland and Allegheny Counties from John F. Casey, Pittsburgh, $3,765,475; divided highway and bridges at Pittsburgh, Allegheny County, from Harrison Construction Co., Pittsburgh, $2,842,938; Bates Street Interchange on Penn-Lincoln Parkway, and Frazer Street on Penn-Lincoln Parkway, both at Pittsburgh, Allegheny County, from B. Perini & Sons, Inc., Framingham, Mass., $2,070,580 and $1,847,361.

Pulp Mill—Idaho Montana Pulp & Paper Co., Missoula, Mont., plans pulp mill at Coeur d'Alene, Idaho, to cost $5,000,000.

Veterans Hospital — Consolidated Engineering Co., Inc., Baltimore, Md., has been awarded $4,853,000 contract by U. S. Engineers, Baltimore, to build Veterans Hospital at Baltimore.

Military Housing—Post Engineer, Fort Sam Houston, Tex., will take bids Oct. 10 for rental housing units for junior grade officers and noncommissioned personnel. Estimated cost is about $3,000,000.

Schools—Board of Education, Wichita, Kan., plans schools. Election will be held Nov. 8 to vote on $3,113,000 bond issue.

Dormitory, Chemistry and Agricultural Buildings—George A. Fuller Co., Chicago, Ill., was low bidder when Purdue University, West Lafayette, Ind., opened bids for dormitory, chemistry and agricultural buildings at $2,607,000. Walter Scholer & Associates, Lafayette, Ind., are architects for the project.

Arterial Route System—B. D. Tallamy, superintendent New York State Department of Public Works, Albany, N. Y., presented a master plan for 13.4 miles arterial Route System in Johnstown and Gloversville, to cost $3,696,100, and 5.3 miles in Cortland to cost $2,019,000. The roads are to be part of New York State's Urban Arterial Route Program.

Commercial Center—Standard Construction Co., Washington, D. C., has been awarded contract for a commercial center, including stores, offices and parking area at Seven Corners, Va., at an estimated cost of $2,000,000. Corning & Moore, Washington, D. C., are architects.

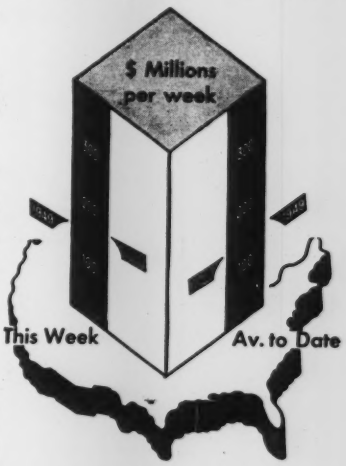
Airport Terminal Building—City of Philadelphia will take bids about December for construction of a finger-tip type terminal building at International Airport, Philadelphia, Pa., to cost less than $5,000,000. Carroll, Grisdale and Van Alen, Philadelphia, are architects and Airways Engineering Corp., Washington, D. C., is consultant.

Hungry Horse Reservoir—Coleman H. Dykes, Knoxville, Tenn., was low bidder on a delayed bid of $5,677,000 for clearing part of Hungry Horse Dam site in Montana. The Bureau of Reclamation, Columbia Falls, Mont., said bid was taken after a check with postal authorities, which revealed bid was mailed early enough to have been received in time. Nello L. Teer Co., Durham, was previously announced as low bidder at $6,715,100.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Oct. '49	480.43	230.94
Building Cost	Oct. '49	353.52	191.10
Volume	Sept. '49	291	128



Activity This Week

As reported to ENR (in millions of dollars)

Amount of Contracts let

	Week of Oct. 6 1949	Cumulative 1949 (40 wks.)	Cumulative 1948 (41 wks.)	% chge av.wk.
Federal	$15.1	$840.7	$765.3	+13
State & Mun.	58.5	2,495.1	2,060.6	+24
Total Public	$73.6	$3,335.8	$2,825.9	+21
Total Private	78.8	2,987.7	2,620.5	+17
U. S. Total	**$152.4**	**$6,323.5**	**$5,446.4**	**+19**

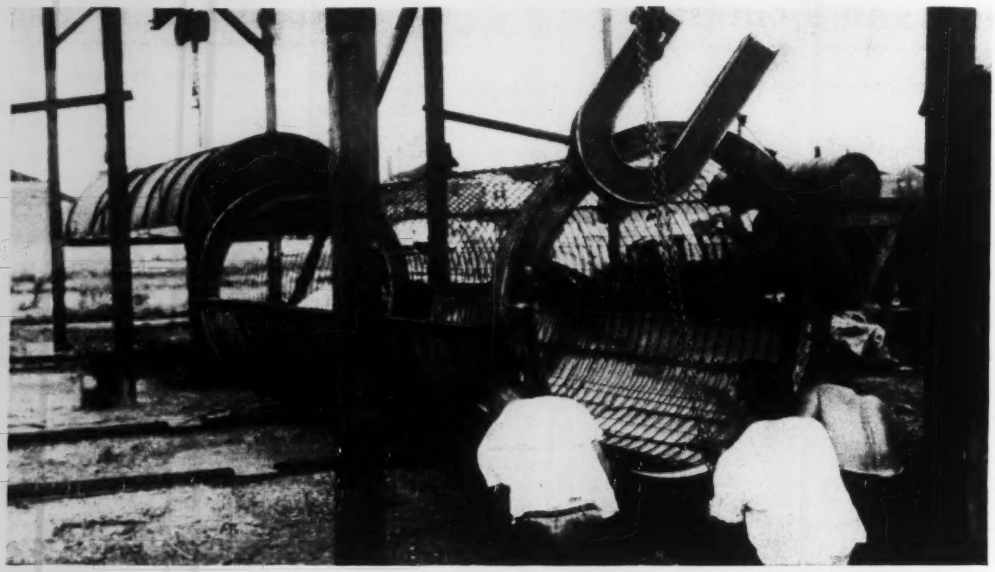
Contracts by type of work

	This Week	Cumulative 1949 (40 wks.)	Cumulative 1948 (41 wks.)	% chge av.wk.
Waterworks	$6.3	$166.9	$162.9	+4
Sewerage	4.2	202.6	171.9	+21
Bridges	10.6	266.9	227.5	+20
Highways	18.8	742.3	827.7	−8
Earthwork, Waterways	1.7	432.1	407.3	+9
Buildings, Public	28.6	1,276.3	849.4	+54
Industrial	16.6	808.6	800.6	+4
Commercial	51.7	1,838.9	1,480.5	+27
Unclassified	13.8	588.8	517.5	+17

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (40 wks.)	Cumulative 1948 (41 wks.)	% chge av.wk.
NON-FEDERAL	$4,564.1	$3,626.6	+29
Corporate Securities	1,842.9	1,667.9	+13
State and Municipal	2,336.2	1,466.4	+63
U. N. Building Loan	....	65.0	...
Federal-Aid Highway	385.0	427.3	−8
Federal	621.8	1,558.9	−59
Total Capital	**$5,185.8**	**$5,185.5**	**+3**



CAST STEEL END RINGS are fitted to the mold for casting concrete pipe core after a pre-tied reinforcing cage is inserted.

New Casting and Prestressing Techniques For Ultra-Strong Concrete Pipe

THE MARRIAGE of two new pipemaking techniques has produced a remarkably husky offspring—54-in. x 16-ft. prestressed concrete pressure pipe for a water line relocation near St. Louis. The process involves: (1) Roller-compaction of a dry, high-strength concrete in a rotating mold to make a thin-walled pipe, called the core; (2) wirewrapping the core spirally to prestress it simultaneously in two directions; and (3) covering the wire with air-applied mortar.

The resulting pipe is super-strong. It withstands load tests more than three times as severe as those required for reinforced concrete sewer pipe. Included is a beam-action test under a 24-ton load concentrated at the midpoint of a pipe barrel supported only at bell and spigot.

The water line is being relocated for the East St. Louis and Interurban Water Co. by the Corps of Engineers as part of their Chain of Rocks Canal project on the Mississippi River at Granite City, Ill. (ENR Dec. 9, 1948, p. 95). The existing 54-in. line cuts diagonally across the canal alignment at an angle of 30 deg., so this section is being replaced by two right-angle legs normal and parallel to the canal centerline. Although the reinforced concrete pipe now in place is in good condition and will be salvaged, the line can not be shut down for more than 12 hr. Hence, new pipe must be laid.

Strength and size

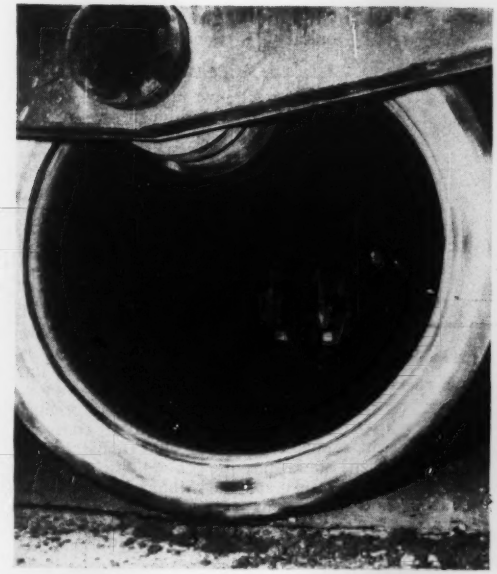
The relocated line will be 5,200 ft. long, and calls for 302 sticks of pipe, plus 34 specials. Pipe has an internal diameter of 54 in., an over-all length of 16 ft. 5½ in., and a 16-ft. 0½-in. laying length. Joints are a rubber-gasketed type with steel bell and spigot rings, sealed inside with a plastic filler and outside with cement mortar. Design pressure is 108 psi. (250-ft. head).

All the pipe is made in Chicago and trucked to the job site. It's a long haul—300 mi.—but the pipemaker already had a temporary yard there, an efficient crew of men and a dependable source of aggregate.

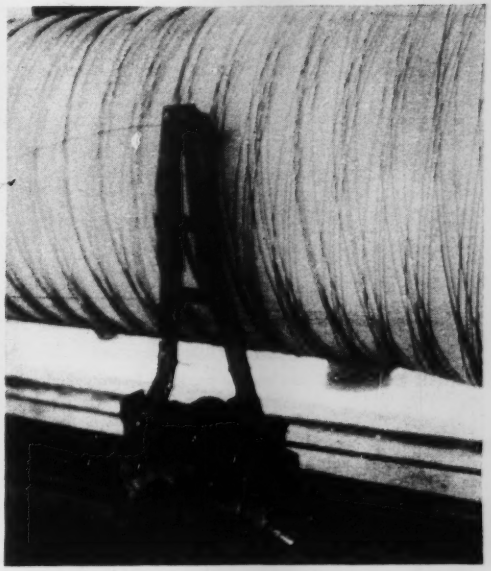
The pipe core is centrifugally made by the Rocla roller suspension method. The system differs considerably from other centrifugal pipemaking process in that: (1) The concrete mix has an extremely low water-cement ratio: (2) spinning speed is comparatively slow; (3) the casting mold, or outer form, hangs loosely from a small-diameter horizontal steel spindle that projects through the bore of the mold; (4) the spindle acts both as a shaft to turn the form and as a roller to compact the concrete after it has built up between spindle and mold.

The Rocla method was developed in Australia and has recently been introduced to the U.S.—the Chain of Rocks project being only its second application here. The 54-in. pipe for this job is the largest ever made by the process.

Concrete cores for most of the pipe have a 3-in. wall; for those that will be laid under high fills they are 4 in. The pipe molds are a four-piece assembly that form-up the outer face of the core. Two of the pieces are semi-



SPINDLE ROTATES MOLD, rolls and places the concrete.



LATHE TURNS CORE as wire forms basket weave pattern.

cylindrical shells of ¼-in. steel plate stiffened by circumferential ¼x1½-in. flat-bars welded on edge to prevent distortion, while two are triple-purpose cast steel end rings. The rings act as forms for the ends of the core; hold the pipe's steel joint rings and prestressing anchors in place for embedment in the concrete of bell and spigot; and, during casting, are the bearing surfaces that support the mold on the rotating spindle.

The cores are reinforced by a cage of welded wire fabric (a 4x8-in. mesh of No. 4 and No. 7 wires) to help them resist handling stresses prior to wire winding. A pre-tied cage, with chairs attached to locate it properly in the core concrete, is slid into an oiled half-mold. Then, end rings and the other half-mold are bolted on and the assembly is rolled to the casting shed.

In the casting shed, two chain hoists on an overhead monorail lift the mold, which weighs 4,500 lb., and thread it over a long horizontal spindle. The spindle is a 16-in. dia. smooth steel roller that is driven by a 30-hp. electric motor through multiple V-belts. While molds are being slipped on or removed, the roller cantilevers from a heavily-framed support at the rear; while rotating, its outboard end, projecting through and beyond the mold, is supported by a hinged bearing swung into place. The mold hangs free on the roller—the only points of bearing being on the inner circumference of the end rings. When the roller spindle turns, friction between it and the end rings rotates the mold at 60 rpm.

Concrete mix

As the mold turns, a stiff-mix concrete is dumped into it. It consists of: 600 lb. of ¾-in. aggregate; 200 lb. of ¼-in. aggregate; 200 lb. of coarse sand; 23 lb. of fine sand; 3 bags of cement; and only 10 gal of water. The low water-cement ratio (0.45 by volume) makes strong concrete. Tests of 28-day cylinders consistently show considerably more than the 8,000-psi. compressive strength specified, and have run as high as 10,700 psi.

The concrete mixer is a three-bag paddle-type unit above and to the rear of the spindle. It receives batched aggregates and cement from an automatic skip hoist alongside, and discharges through the bottom to a hopper over an 8-in. x 27-ft. belt conveyor. The conveyor cantilevers into the pipe mold and is extended or retracted by hand winch to dump concrete where desired along the length of the core. The belt is offset from the pipe centerline, being displaced toward the down-coming side of the mold to prevent spatter.

Centrifugal force of the turning mold tends to flatten the concrete smoothly in the core. However, the roller action of the spindle on which the pipe hangs is the main factor in consolidating the stiff mix and gaining the high strength. When the core has built up to its final thickness, the entire weight of mold and concrete is concentrated on the narrow strip of core passing over the roller. This makes dense concrete—weighing close to 167 lb. per cu. ft.

It takes about 30 min. to concrete a core. First, concrete is brought to full thickness in the outboard (bell end) quarter of the pipe, then in the inboard quarter, and finally in the center half. This procedure insures that the vital bell and spigot ends are solidly concreted around the joint rings, because the spin of the pipe has a tendency to force the mix toward the ends.

Cores steam cured

Completed cores and their molds are removed from the spindle, and are cured overnight by steam admitted to the bore and confined by tarpaulin end covers. After stripping, further steam curing takes place in a canvas enclosure where the core awaits its turn to be prestressed.

Prestressing takes place on a wire-winding machine that turns a pipe

MORTAR COATING shot on the prestressed core completes pipemaking procedure.

core about its central axis to wrap high-tensile steel wire around it. The wire is fed from a carriage that moves back and forth alongside the core, applying the wire spirally in a basket weave design. This wrapping technique—here used for the first time—compresses the pipe longitudinally as well as circumferentially.

The prestressing wire is 8-gage, cold drawn, high-carbon wire with an ultimate strength of 200,000-psi., and a 175,000-psi. yield point. It contains from 0.60 to 0.70 percent carbon and 0.70 to 1.00 percent manganese. The wire is stressed to 140,000 psi., and its diameter is reduced as the turning pipe slowly pulls it through a stressing device.

The winding machine is much like a big lathe. A 25-hp. electric motor powers the headstock, turning the pipe at 20 rpm.; the tailstock is connected to an air cylinder that retracts it while cores are inserted or removed. Both head and tailstock fit inside the pipe ends and are expanded to hold them securely.

Oil pressure controls die

The die that stresses the wire is mounted in a vertical arm on a carriage traveling from one end of the machine to the other on a beam rail along one side of the pipe. An oil-hydraulic motor drives the carriage, whose speed is governed by oil pressure at the pump. With pipe rotation constant, carriage speed determines the pitch of the spiral wrap. In turn, with wire tension constant, the pitch determines the magnitude of the longitudinal and circumferential components of the prestress. Pitch varies from 16½ in. for pipe that will be laid in a continuous concrete cradle under shallow cover, to 86 in. for pipe that will span 16 ft. between pile-bent supports.

The wire is automatically anchored and kept from sliding back at the ends of the pipe. As the carriage reverses to wrap another spiral, the wire hooks itself over steel pins or lugs in the joint rings. The pins extend through, and are welded to the rings so they have the dual function of holding the rings to the concrete and the wire to the ring.

Anchorages and splices

In starting a wrap, the prestressing wire is tied around one of the lugs. Upon completion of the required number of spirals (from 30 to 69, depending on the field conditions under which the pipe will operate) the wire is held by a wedge hand-clamp, then is cut and tied around an adjacent strand. Splices during winding are made by standard wire-splicing torpedoes. These simply slip over the ends of both wires in order to hold them under full tension by a wedging action.

The prestressed pipe is left on the lathe while a ¾-in. protective coating of cement mortar is pneumatically applied. For this operation, the machine is geared to 2 rpm. An added benefit from the basket weave prestressing shows up here—the spaces at the diagonal overlap of the wires gives the mortar an extraordinarily strong bond.

Removed from the lathe the pipe is shifted to hinged, inverted L-shaped standards that are swung up inside the pipe ends. These support it during its final steam curing within portable framed canvas shelters. After curing, the pipe's interior surface is painted with an asphaltic membrane seal coat. Completed pipe is lifted by crane on to shallow timber cradles in semi-trailer trucks that haul the lengths—only two to a load—to the job site.

Pipe tests

Representative pipes are picked at random and put through severe tests. One of the pipe designs (4-in. concrete core; 1,210 lb. of prestressing wire in 58 spirals with a 17¼-in. pitch and a 0.3-in. spacing) will lie beneath canal levees and have as much as 37 ft. of cover over the invert. It is tested as follows: The barrel of the pipe between inside edges of the spigot ring and the bell section (13 ft.) is subjected to a three-edge bearing load of 8,800 lb. per lin. ft. without causing any visible cracks. The test load is then increased to 17,600 lb. per lin. ft. without causing the pipe to fail. The load is reduced to the original 8,800 lb., bell and spigot ends are bulkheaded, and an internal hydrostatic pressure of 54 psi. (125-ft. head) applied without harmful leakage.

In contrast, under ASTM standard specifications (C75-41), 54-in. reinforced concrete sewer pipe is only required to withstand an ultimate load of 5,550 lb. per lin. ft.—and this is for a pipe with a 5½-in. wall.

Another pipe design (3-in. core., 302 lb. of prestressing wire, 69 spirals, 86-in. pitch, 1¼-in. wire spacing), which will carry the water line across a slough, is to rest on bents of twin 16-in. x 15-ft. concrete piles beneath the bells. To test this type pipe, it is supported under bell and spigot ends only, and a concentrated load of 32,250 lb. is applied at the midpoint without causing visible cracks. The test load is increased 50 percent to 48,375 lb. without failure, then reduced to 32,250 and the pipe hydraulically tested at 32 psi. (75-ft. head).

River Construction Corp., New York, with F. B. Spencer as general manager and R. J. Dunlap as construction manager, is general contractor for the $500,000 Chain of Rocks water line relocation. Preload Enterprises Inc., New York, designed the pipe under its patents for the "basket weave" method of prestressing and as exclusive licensees in the U. S. and Canada for the Rocla roller suspension method of casting the concrete cores. The Preload Central Corp., Kansas City, Mo. is making all the pipe for the job. Tom Chiverton is superintendent in charge for the latter. The project is under the direction of the St. Louis District, Corps of Engineers. Col. R. E. Smyser, Jr., is district engineer and Lt. Col. Paul LaDue is resident engineer.

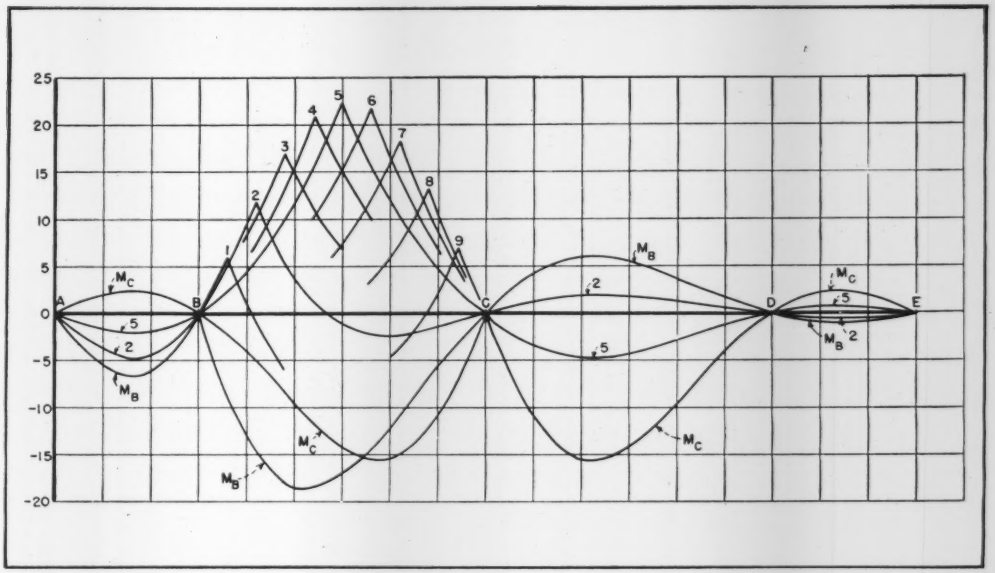


FIG. 1. INFLUENCE LINES for one span of a four-span continuous beam, which were rapidly drawn by a graphical method.

How to Plot Influence Lines Rapidly

Bernard L. Weiner and Irvin Singer
Associate Engineer and Engineer, respectively,
D. B. Steinman, Consulting Engineer, New York, N. Y.

BENDING-MOMENT influence lines for statically indeterminate structures can be plotted rapidly with the aid of a graphical construction that eliminates most of the tedious computation usually necessary. The method is directly applicable to continuous beams and to members of structures in which the variations in the effect of the thrust resulting from the curvature of the member is negligible. Where this variation is not negligible, the procedure can be used to obtain partial results and the effect of the variation added as a correction.

The method is based on the relationship between the moment influence line and the moment diagram for a single concentrated load. By definition, it will be recalled, the influence line gives the moment at a specified point due to a single concentrated load at any point on the structure. A moment diagram, on the other hand, gives the moment anywhere on the structure for the load at the specified point.

Consider, for example, a four-span continuous beam (Fig. 1). For definiteness, consider further that each member is divided into several equal lengths—for convenience, say 10. An influence line is to be plotted for each of these points.

The first step is to compute and plot the influence lines for the end moments at B, C and D—the computing being done by any method the designer wishes to use. With these end moments, the moment at every one of the ten points in each span can be obtained for a single load acting successively at each point in every span. The results can be used to plot either a set of moment diagrams or a set of influence lines. Exactly the same values appear in either set. It follows, therefore, that if either set were plotted, the other could be obtained from it.

Since the moment diagram for a concentrated load on the continuous beam is composed of straight lines, moment diagrams can be plotted much more easily than influence lines, which are curves. Thus, in theory, a rapid method of obtaining influence lines would be to plot the moment diagrams for a load at every point first and then use them to draw the influence lines.

In practice, however, it is not necessary to draw the moment diagrams. Use is made of their straight-line composition to show that there is a linear relationship at any point between the ordinates of a set of influence lines, and this relationship is utilized to obtain the influence lines directly.

Two cases must be treated: (1) when the load is on one span and the point for which the influence line is being plotted is on another span and (2) when the load point and the moment point are on the same span.

Influence lines for Case 1

In the first case, suppose, for example, that the moment diagram for span BC (Fig. 2a) has been drawn for a load on some other span, such as DE (Fig. 2b). Every point on the moment diagram, line B′C′ (Fig. 2c), must have a corresponding position on

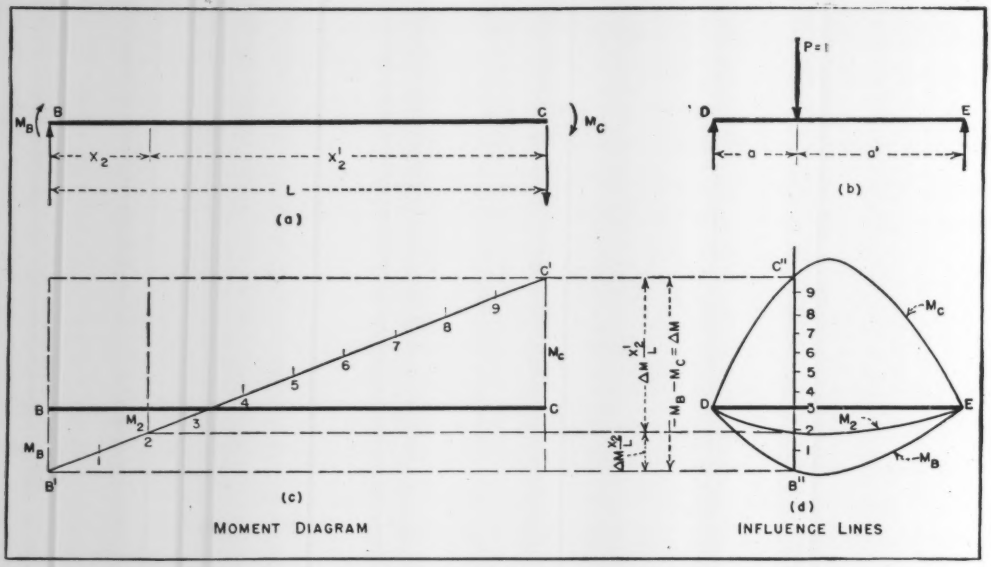


FIG. 2. INFLUENCE POINTS obtained for the case when moment point and load point located in different spans.

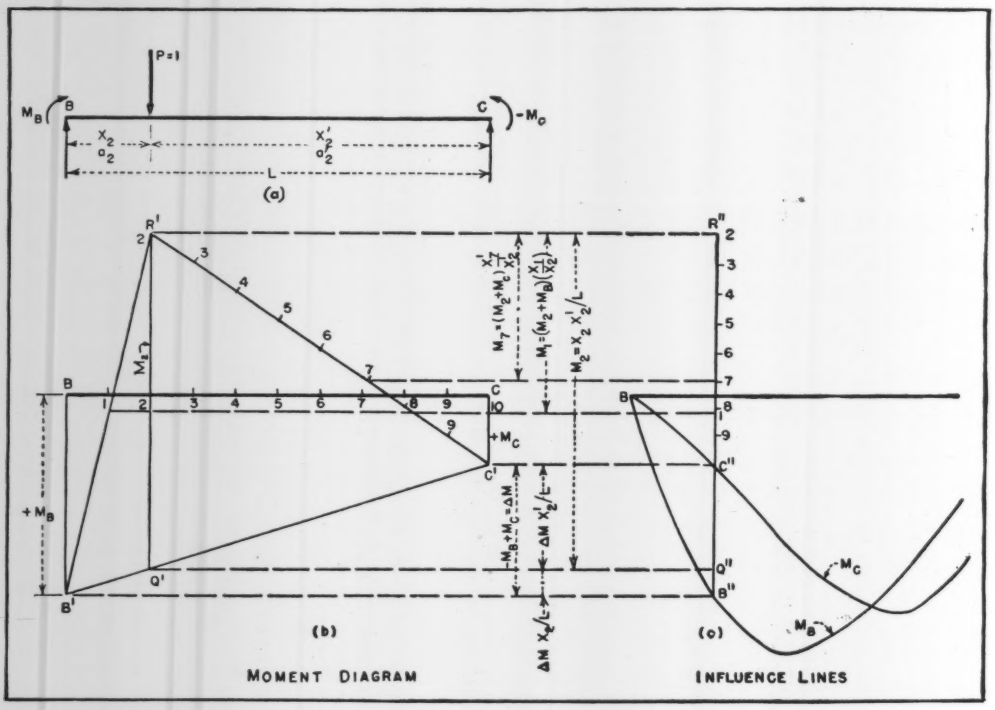


FIG. 3. GRAPHICAL CONSTRUCTION for influence points when moment and load points are in the same span.

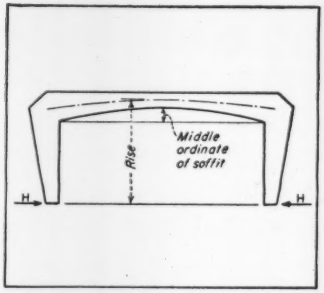


FIG. 4. AN ARCHED MEMBER having a rise that must be taken into account in computing bending moments.

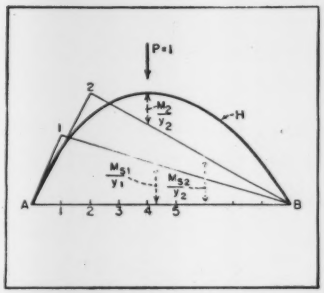


FIG. 5. INFLUENCE LINES for a two-hinged arch, with thrust influence line as a base for measuring ordinates.

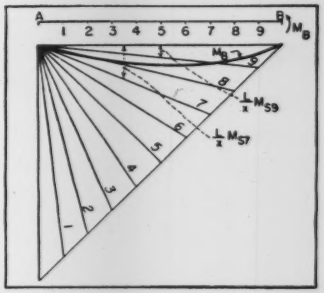


FIG. 6. FOR THE END SPAN of a continuous beam, influence lines are measured from the end-moment influence.

some influence line drawn in span DE for moments at points on BC.

A comparison of Fig. 2c with Fig. 2d, in which the influence lines for end moments at B and C, M_B and M_C, respectively, have been plotted, indicates that the ordinates of B′C′ can be laid off in Fig. 2d without drawing Fig. 2c. When BC is divided into equal parts, B″C″—the ordinate at the load point included between the influence curves for M_B and M_C—need only be divided into the same number of equal parts. Each point on B″C″, numbered to correspond with the points on BC, represents a point on the influence line for that BC point.

If this procedure is repeated for every point on DE—that is, the ordinates between the curves for M_B and M_C are divided into ten equal parts—and points with the same number are connected by a smooth curve, the influence lines are obtained for the moments at the ten points in BC due to loads on DE.

Influence lines for Case 2

When the load is in the same span as the moment point, the simple-beam moment must be added to the effect of the end moments. Hence, for this case, a modification of the foregoing procedure is necessary (Fig. 3). Suppose the influence lines are to be plotted for BC for loads on that span. As before, the moment diagram, B′C′ is drawn. Point Q′ is located on B′C′ at the point of application of the load. The simple-beam moment at this point is computed and laid off vertically from Q′ to locate point R′ (Fig. 3b). This enables the bending moment diagram to be drawn, and every point on this diagram is also a point on one of the desired influence lines.

A comparison of Fig. 3b with Fig. 3c, in which the influence lines for end moment in BC have been drawn, indicates that Q″ can be located directly on B″C″, the ordinate included between the end-moment influence lines. Point R″ can be located directly also by laying off the simple-beam moment at the load point from Q″. Then, B″R″ is divided into the same number of segments as there are between B and the load, and C″R″ is divided into the same number of segments as exist between the load and C. Finally, if this procedure is repeated for loads at every point on BC, connecting points with the same number yields the influence lines for moment at the ten points on BC due to load on BC.

If the span is not divided into equal segments, the modification necessary can be made with the formulas given in Fig. 2 and Fig. 3.

Diagrams for arches

In the case of arched members the moment effect of the thrust, H, must be taken into account. The moment at each point must be corrected by algebraic addition of Hy, where y is the ordinate of the moment point measured from a base line connecting the ends of the member.

For rigid-frame members with small curvature that are analyzed by methods neglecting the rise of individual members (as is usually the case in moment distribution), the rise must also be neglected in computing the moments. If this is not done, the "correction" will introduce new errors that are much larger than the original error. For these members, influence lines can be plotted by the method previously given without modification.

For arches with high rises, a correction can be made after influence values neglecting the rise are obtained. Individual designers will prefer to make the correction in different ways. Such structures, however, being important, will require close attention in any case, and influence lines must be drawn no matter how laborious the task. Even for these structures, the procedure given here will reduce the amount of drudgery considerably.

It is worth noting that a well-known method for drawing influence lines for the case of one redundant—which has been developed for the two-hinged arch—can be extended to the case of the end span of a continuous beam.

In the case of the two-hinged arch, or frame, the moment at any point is

$$M = M_s - Hy$$

where M_s is the simple-beam moment, H is the thrust and y the vertical ordinate as before. Dividing through by y gives

$$M/y = M_s/y - H$$

Influence lines, as given by this equation, are shown in Fig. 5. The ordinates are measured from the H influence line as a base. Actual influence values, however, are obtained by multiplying every moment ordinate by the y-ordinate at the moment point under consideration.

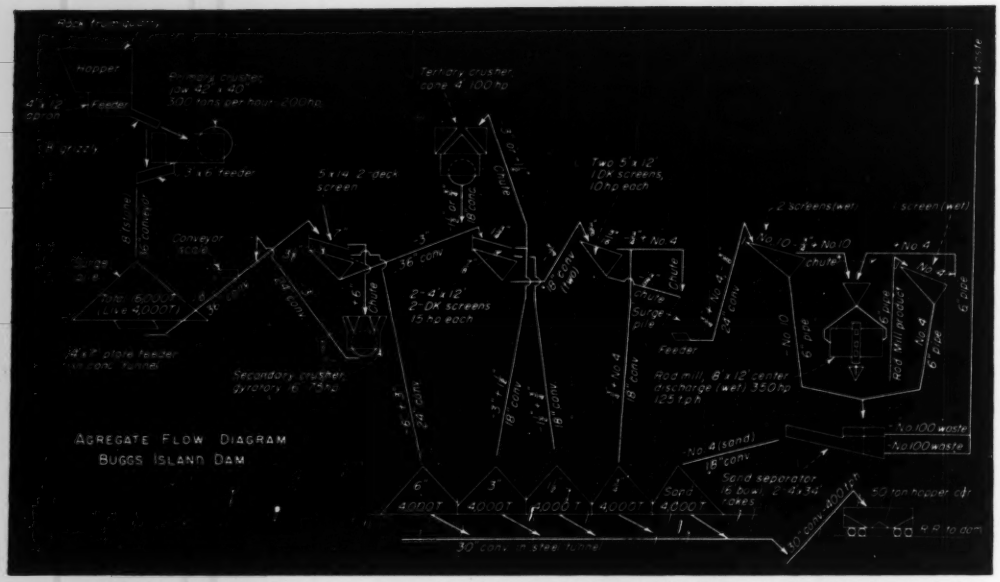
If the exterior end of a continuous beam is simply supported, there is only one redundant—the first interior moment. In this case, the moment at any point in the end span is

$$M = M_S - \frac{x}{L} M_B$$

where M_s is the simple-beam moment and M_B the end moment. Multiplying both sides of this equation by L/x gives

$$\frac{L}{x} M = \frac{L}{x} M_S - M_B$$

Influence lines, as given by the last equation, are shown in Fig. 6. The ordinates are measured from the M_B influence line as a base. Actual influence values are obtained by multiplying each ordinate by the value of x/L at the moment point under consideration.


AGGREGATE FLOW DIAGRAM
BUGGS ISLAND DAM
Rock from quarry
hopper
4'x12' apron feeder
Primary crusher 24" x 42" x 40" 50 tons per hour 200 hp
Tertiary crusher cone 4 100 hp
5'x14' 2 deck screen
Two 5'x12' 10K screens, 10 hp each
Conveyor 18" belt
Surge pile 6,000 t (Live 4,000 t)
2-4'x12' 2-DK screens 15 hp each
14'x7' plate feeder (with conc. hopper)
Secondary crusher gyratory 6" 75 hp
Rod mill, 8'x12' center discharge (wet) 350 hp 125 tph
No 4 (sand) 18" conv
Sand seperater 16 bucket 2-4'x34' cones
Sand 4,000 t
No 100 waste
50 ton hopper car
30" conv. in steel tunnel

BUGGS ISLAND DAM AGGREGATES all are manufactured from bedrock in the 3,500 ton per day plant diagramed above.

Sand to Six-inch Stone— All from Same Quarry

ALL AGGREGATES for Buggs Island Dam are coming from the same place. This means sand as well as four sizes of crushed rock, all from a tight and massive granite-gneiss formation that is being quarried 2.65 miles from the dam site.

There is nothing unusual about processing the coarse material, but manufacturing sand from the same source is somewhat novel, resulting as it does from the Army Engineers' postwar practice of requiring uniform physical properties throughout aggregates for concrete dams. The objective is to avoid thermal-expansion differentials among the particles in hardened concrete.

(For a description of an all-gravel aggregate production job, see ENR, March 3, 1949, p. 38.)

Buggs Island dam is a flood control and power project on the Roanoke River in central southern Virginia. A description of the project and the construction plant at the dam site was given in ENR, Aug. 25, p. 26. In that article it was stated that the dam contractor received his aggregate F.O.B. cars at the dam site.

Getting the materials out of the ground and onto the dam site siding is the responsibility of another prime contractor, Ralph E. Mills and Gorman Bros., Salem, Va.

This contractor set up his quarrying and processing job in time to have 60,000 tons (of a total contract tonnage of 1,600,00) ready by April, 1949, when concrete placement began.

Quarrying practice

From the first, the quarrying phase of work has been simple and straightforward. Thin overburden was removed from several acres of gently-domed gray bedrock, then drilling was begun. At first the rock was drilled with 6-in. well drills, but poor fragmentation from primary blasting resulted in too much secondary blasting, so wagon drills were adopted.

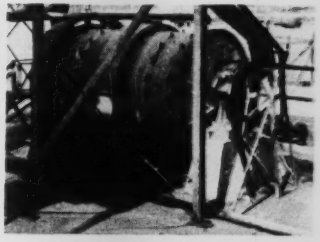
Currently, seven wagon drills sink 300 holes 25 ft. deep for a single blast. Chisel-type 2¼-in. carbide insert bits average 300 ft. of hole apiece, with 7-10 sharpenings, each of which reduces the gage ⅛ in. Instantaneous fuses fire the explosives through millisecond delay exploders, which improves the fragmentation. Generally a charge totals 2 tons of explosives, and yields up to 10,000 tons of rock.

The quarry is being worked on a 50-ft. face, in two lifts. A 2½-yd. and a 2-yd. shovel, aided by a bulldozer, muck the rock, loading into rock trucks for a short haul to the processing plant's primary crusher.

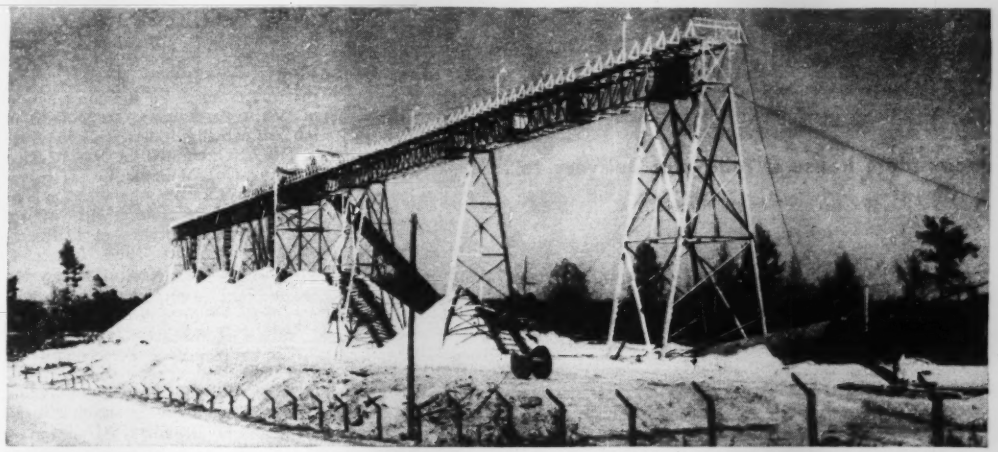
Located right at the quarry's edge, the processing plant delivers sand, ¾-in. 1½-in., 3-in. and 6-in. material to 50-ton hopper-bottom cars. The contractor operates his primary crusher 16 hours and his secondary crusher 10 hours, to get as much as 3,500 tons of aggregate per day. Electric power is used throughout the plant.

The flow diagram above details the sizes of equipment in the plant. The diagram also indicates the material sizes that travel the various routes, "+" meaning "larger than," and "—" meaning "smaller than."

QUARRYING OPERATIONS. Wagon drills (background) prepare for the next blast while power shovel bulldozer and rugged rock trucks muck the 25-ft. face.



MAKING SAND. Rods in this rotary mill tumble with wet stone to produce sand.



SHUTTLE CONVEYOR atop Buggs Island dam's left abutment. Here is where the dam contractor stockpiles materials delivered to him by the aggregate contractor. For removal, materials drop to tunnel conveyor, emerge at lower right.

In general, the drawing is self-explanatory, but a few of the alternative routes will be elaborated, and the sand-making process will be described.

First, material retained by the lower deck (3½-in. opening) of the 5x14-ft. screen near the left-hand side of the diagram may be fed either to the 6-in. stockpile or, if the 6-in. is running high, through the secondary crusher. (Material retained on the top deck goes to the secondary crusher.)

Second, material retained by either deck of the next screens to the right (4x12 ft.), may be conveyed to the stockpiles or chuted to the tertiary crusher, again depending upon size-demand and the way rock sizes are running.

Third, material retained on the next screen to the right (5x12 ft.) may be sent either to the ¾-in. pile or to the surge-pile for sand plant feed.

The sand plant, through which materials are water-borne, in pipes, consists of two principal elements, a rod mill and a sand separator. The rod mill is a steel drum (see photo) inside which 12-ft. steel rods 2-in. to 3-in. diameter tumble with water-borne sand. Sand from this mill grades from No. 4 down to No. 100. In adjusting this mill to the local stone, the contractor started with 38½ tons of rods, reduced the weight to 27 tons before he obtained a product that was properly graded and that did not contain an uneconomic proportion of waste (No. 100).

The sand separator utilizes the flotation principle to separate the waste from the sand. A bowl classifier with a constant speed rake controls the selection of proper sizes. Waste water and fines leave the separator on two levels, and travel by gravity through a 6-in. pipe to a settling basin. Pulled by power rakes, the graded sand leaves the separator by an inclined channel. As the sand rises, the water drains back into the separator. Dewatered sand travels on a conveyor to the sand stockpile.

As has been mentioned previously, aggregates go from processing plant stockpiles into 50-ton hopper-bottom cars. The contractor has 25 of these, and he has two diesel locomotives for moving them to the dam site.

Dam site stockpiling

The dam contractor conveys aggregates uphill from his track hoppers to his shuttle conveyor, shown above. This shuttle conveyor has one discharge position for each coarse aggregate size (rock ladders reduce impact breakage in the 6-in., 3-in. and 1½-in. piles) and three discharge positions for manufactured sand. A belt conveyor carries the various sizes out of the reclaiming tunnel as they are needed for concrete.

Buggs Island Dam is being built by the Norfolk District, U. S. Corps of Engineers; Col. G. T. Derby, district engineer; Fred L. Geis, Jr., resident engineer; W. D. Nowlin, assistant resident engineer (materials). R. W. McCall is project manager for Mills and Gorman and Clyde Bergin is quarry superintendent. Jones, Tompkins and Wright, South Hill, Va., are the dam contractors.

Prefabs and Pre-Planning Build Low-Cost Town

A complete house is ready for delivery to . . .

Foundations prepared in advance at Los Alamos, where . . .

The precut wood framed houses were quickly erected.

BASING THEIR WORK on thorough preplanning, contractors for the Atomic Energy Commission have succeeded in building a complete community near Los Alamos, N. M., in less than eight months and at a record low cost of $1,010 per person housed.

The construction (at White Rock, a 5,000-person residential satellite of the AEC's Los Alamos center) is part of an over-all program, now being carried forward to house AEC workers better (see ENR Aug. 18, p. 48).

The most dramatic demonstration of the value of preplanning, and of a very extensive use of prefabrication is that the estimate for the construction of White Rock was $4,000,000: The job was actually done for $3,591,494.

The AEC retained the New Mexico Housing Co., of Santa Fe, as supervising architect and engineer for construction of the project, with Walter W. Cook & Associates of Dallas as associate architects, and Carter & Burgess of Fort Worth as associate engineers.

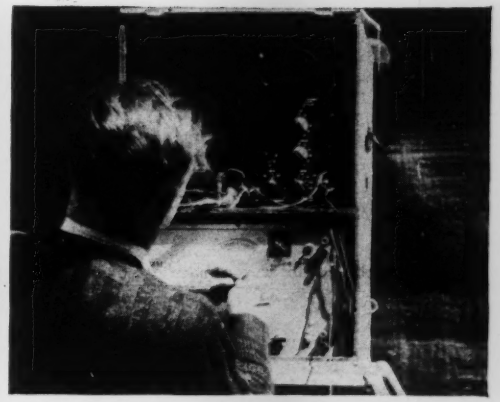
One of the most interesting of the subcontracts is the one let to Shaw & Estes of Dallas, covering construction of all buildings.

This contractor used assembly-line construction methods developed by the Texas Housing Co. at Dallas. Under its system, all raw lumber used in construction passes through a 40-acre plant at Dallas, for precutting and panelizing for quick assembly on the job. Panels are built in 16-ft. lengths.

All wall panels were sheathed on the exterior in the Dallas plant with $\frac{3}{8}$-in. plywood, and door and window frames put in place. After erection, exterior walls were finished with asbestos shingles, underlaid with building paper. All structures are insulated with roll-type insulation, and interior walls are finished in plywood or plasterboard, according to the style of house. All buildings have double floors, the under-flooring of 1x6-in. pine being applied to floor panels at Dallas.

Foundations for dwelling units consist of round concrete pillars set into the ground below frost line. For larger buildings, concrete beam foundations were provided.

As a part of the assembly line operation, one complete house was loaded on a single truck, whenever possible, and that truck transported the material directly to the construction site. Trucks were dispatched on a closely-controlled time schedule. Flow of building materials was steady and adequate at all times.



Vibrating wire wrappings and measuring frequency with an oscillograph enables . . .

Gaging Wire Tension in Prestressed Tanks

TESTING THE TENSION of wires wrapped around 18 large prestressed digestion tanks at the Hyperion sewage treatment plant is accomplished by an electrical device developed for the job. The specified stress of 120,000 to 150,000 psi. is checked without breaking or removing the prestressed wires from the tanks for the 245-mgd. Los Angeles plant (ENR April 14, p. 65).

The method involves a comparison of the vibration frequency of the prestressed wires with the frequency produced by a similar laboratory-stressed wire. Frequency vibration of the prestressed wire wrapping is conducted via a portable magnetic pickup to an oscillograph where the frequency is determined. A calibrated "frequency vs. tension" chart then gives the tension in the wire.

Such a tension-checking device was necessary to make sure that specification limits were met. Overstressing the wires was as much a problem as understressing. In some instances wires were stressed to 176,000 psi. (yield point = 181,000 psi.). Then contraction due to lowered temperatures added enough stress to break the wires.

The use of frequency of vibration for measuring tension in a wire was brought to the fore in 1934 by N. Davidenkoff, a Russian engineer (ASTM Proceedings, Vol. 34, p. 847). The Los Angeles Bureau of Standards has adopted this idea to prestressing.

Calibration was made by loading wires of various lengths to known tensions in a testing machine and determining the frequency of vibration for various loadings. Theoretical tensions were first calculated from the vibration-frequency formula that gives the fundamental natural frequency of a stretched wire (using centimeter-gram-second measuring system):

$$N = \frac{1}{2L}\sqrt{\frac{T}{m}}$$

where N = frequency (vibr. per sec.)
L = length of the wire (cm.)
T = tension on the wire (dynes)
m = mass per unit length (gr. per cm.)

It was found that there was a constant error between the theoretical computation and the actual frequency at a given tension. This error is constant for a given type and size of wire and is attributed to the wire stiffness.

Theoretical tensions were compared to the applied tension at the tanks by welding ¼-in. round, cold-rolled rods to the tanks in 2-ft. squares. Across these squares or bridges the wire wrappings were drawn in the regular wrapping procedure. A total of 27 bridges were used for each of the tanks, staggered around the 350-ft. circumference. About 30 wire wrappings fell across each bridge.

Laboratory standards

In setting up tension standards in the laboratory, a 2-ft. length (the same length and size wire which fell across the bridges) of wire was used. Drawn wires from various sections of the tanks were laboratory stressed, and the various frequencies recorded for various tensions from 100,000 to 160,000 psi. Wrapping wire was initially .162 in. dia., but during the wrapping the wire was drawn down to .142 in. dia.

In actual testing operations at Hyperion, a bridge wire—one of the 30 that fell across a bridge—was set in vibration by plucking. A magnetic pickup device was held near the wire (but never touching it) and the electromagnetic impulse was conducted through a shielded coaxial cable to a high gain amplifier (110 decibel).

The output of the amplifier was split. Part of the signal went to a loudspeaker that served to tell the operator holding the magnetic pickup that he was getting vibration. The remaining amplified signal was fed into the vertical input of a cathode-ray oscillograph.

A calibrated, variable, low-frequency oscillator fed into the oscillograph's horizontal input. The calibrated oscillator frequency was varied until its pattern on the cathode-ray scope matched that of the frequency from the vibrating wire on the tank. This matching frequency as read on the oscillator dial was used to determine tension by means of the "tension vs. frequency" chart.

Testing was done on all wires individually—requiring about 20 min. per bridge.

The oscillator was checked for drift against the 60-cycle frequency of the power supply prior to each wire plucking. In areas where power is stable, the frequency drift of commercial power is usually less than 1/20 cycle.

Half (12 in.) of each wire was

polarized by running a fixed magnet over each wire to permit the magnetic pickup. The plucking was done with an ordinary pencil and care was taken not to damp the oscillation once the wire was set to vibrating. The magnetic pickup apparatus was held approximately ¾ in. from the vibrating wire.

Tension testing of prestressed wires in this manner has many useful applications—and has particular advantage since this is an absolute method for accurately determining tension without disturbing the wires under test.

Too much tension as well as too little is dangerous in projects of this type because of wire breakage as tension reaches the ultimate strength of the wire. It was found, for instance, that the wire-wrapping machines were, in some cases, wrapping to 176,000 psi.—26,000 psi. above the 150,000-psi. maximum. As the yield point of this wire is 181,000 psi., the tension increase due to cooler nighttime temperatures was enough to break some strands.

After satisfactory testing, the bridges, being permanent, were gunited over. Then another wire layer was overwrapped. Only selected bridges were left uncovered for future testing. These will serve to gage relative tension when tanks are filled and empty; to determine any structural change that takes place during earthquakes; to detect damage or broken wires; and for a year-to-year tension check.

This testing scheme was devised by Courtney B. Harris, resident engineer for the Los Angeles Bureau of Inspection. Fred Viehe, of the same bureau, helped assemble the testing apparatus. John T. Young, director of the Los Angeles Bureau of Standards, supervised calibration, construction of equipment, and the actual testing operation. The tanks were built to designs furnished by Preload Enterprises, Inc., New York City through their West Coast affiliate, Preload Pacific Corp., San Francisco.

Notes on Legal Decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phrases of Construction Contracts (McGraw-Hill)

What Makes a Contract

"Mere preliminary negotiations respecting the terms of an agreement do not constitute an obligatory contract. Preliminary negotiations leading up to the execution of a contract are to be distinguished from the contract itself.

No contract is complete without the mutual assent of the parties to all essential elements of the agreement. The minds of the parties must meet and unite on all essential elements before an effective contract is created.

"Where the parties presently assent to all of the essential terms of an agreement and intend thereby to be presently bound, the mere reference in conjunction therewith to a subsequent contract does not render the contract entered into unenforceable. But where some of the material terms and conditions of the agreement are still unsettled and are reserved for negotiations, no completed contract is created.

"Where contracting parties give their mutual assent to all of the essential elements of an agreement and intend thereby to be personally bound the contract is not rendered unenforceable merely because it fails to set out all of the details with respect to the subject matter. (Citing authorities.)"

"Where an offer of contract prescribes the manner and time of acceptance, the acceptance must be in accord with the offer in order to create a contract. (Citing authorities.)"[1]

"There cannot be an express contract and an implied one relating to the same subject matter and covering all its items. In such a case the express contract would supersede the implied one. (Citing authorities.) But there may be an implied contract on a point not covered by an express one."[2]

(1) Mid-Continent Petroleum Corporation v. Russell, 173 F. 2d 629 (United States Court of Appeals, Tenth Circuit, March 18, 1949.)
(2) Laurenbach v. Meredith, 35 N.W. 2d 870, (Supreme Court of Iowa, Feb. 8, 1949.)

Customs and Usages

A custom or usage, to be binding, must be so uniform, long-established, and generally acquiesced in, and so well-known, as to induce the belief that the parties contracted with reference to it, nothing appearing in the contract to the contrary.

Proof of certain isolated instances is not sufficient to establish a usage or custom. Where a particular usage is relied on it should be established by the testimony of several witnesses.[1]

The action in which this was stated was brought by plaintiff, a general contractor, against the defendant, a subcontractor, to recover damages resulting from defendant's refusal to do the work in accordance with the terms of an alleged written contract. The defendant made a written proposal to do a part of the work at a specified price and plaintiff sent a letter accepting the proposal. Defendant refused to proceed with the work until a formal written contract was entered into, whereupon plaintiff sublet this part of the work to another subcontractor at a greater price than that set forth in defendant's bid and subsequently brought this action to recover the increased cost.

Defendant contended that a universal custom existed in the terrazzo trade, that required the execution of a formal contract between the general contractor and the subcontractor covering details not covered by the plans and specifications.

Plaintiff and other witnesses produced by him testified that he had never heard of such a custom or usage and upon the basis of this testimony, the appellate court held that no such usage or custom had been established.

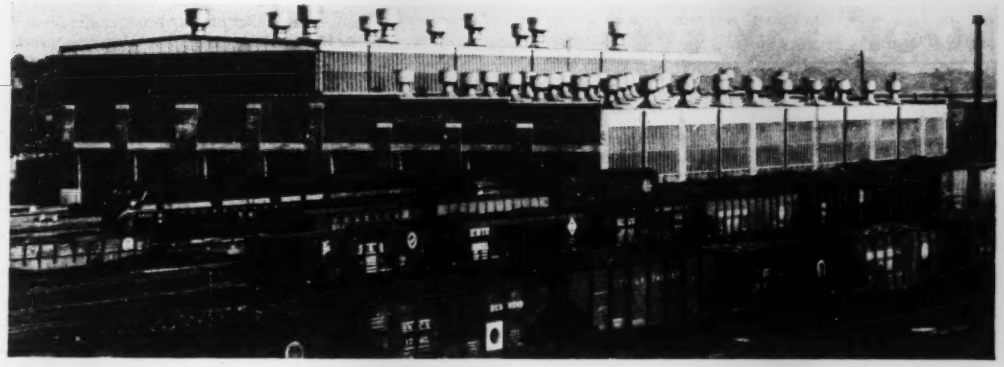
The court held that a written proposal to do part of the work called for by the plans and specifications and an acceptance thereof constituted a valid contract. It was not necessary to enter into a formal contract covering all the details.

While in some cases evidence of custom and usage had been held admissible to add to or explain the terms of a contract, such testimony is not admissible to vary or contradict the terms of a written unambiguous contract.[2]

Where a bid submitted by a plastering subcontractor was based on the specifications and a custom requiring the floor of the building to be installed before the plastering work is started, the subconractor's duty of performance was dependent upon the floor being installed. The failure of the general contractor to comply with this condition justified the plastering subcontractor's abandonment of the work.[3]

The court in this case held that the testimony of a single witness was sufficient to establish the custom, notwithstanding, contradictory testimony.

(1) Traff v. Fabro, 84 N.E. 2d 874 (Appellate Court of Illinois, Feb. 9, 1949.)
(2) Ambarann Corp. v. Old Ben Coal Corp., 69 N.E. 2d 835.
(3) Cross v. Fletcher, 216 S.W. 2d 101 (St. Louis Court of Appeals, Dec. 21, 1948.)



DIESEL LOCOMOTIVE REPAIR SHOP at Harrisburg will be comfortable for the workers because . . .

Three Different Heating Systems Keep Cold Out

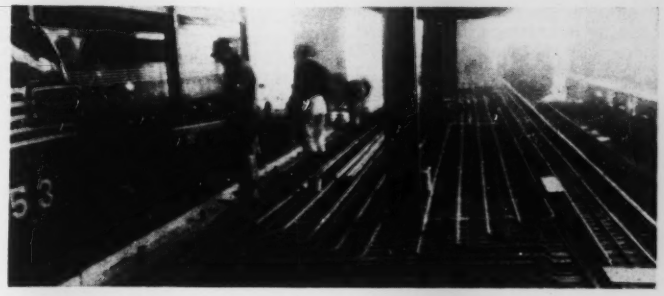
THREE DIFFERENT HEATING SYSTEMS are used in the new Pennsylvania Railroad locomotive repair and maintenance shops at Harrisburg and Enola, Pa. Radiant heating, unit heaters and blast heaters are combined for the comfort of maintenance men who work on passenger train diesel locomotives at Harrisburg and freight-hauling diesels at Enola.

These two structures are of virtually the same design, and both presented the long-recognized heating problem caused by the necessarily large door areas and great size of such buildings. Frequent opening of doors and entrance of tons of cold steel in the form of locomotives into repair shops cause great heat losses.

Calculated by standard methods, heat losses in the brick-walled main structure of the repair shop, with its large steel-sash windows, were found to be near 15,850,500 Btu. per hour with a design temperature of 60 deg. F. indoors to zero deg. F. outdoors. This section of the steel-frame building is 200 x 268 ft., and the maximum roof height is 56 ft. There are eight 14 x 18-ft. rolling steel doors in one wall to admit locomotives. Six sets of tracks enter the building and four of them extend entirely through to exit doors at the other end.

Raised reinforced concrete platforms 7 ft. 2 in. above the working floor level run the length of the building between the sets of tracks. Each platform is 14 ft. wide. Embedded in the 6-in. concrete platform slabs are 1¼-in. dia. wrought-iron radiant-heating pipes, spaced on 10-in. on centers.

With a mean operating water temperature of 140 deg. F., the platform radiant heating coils are designed for an output of 85 Btu. per hr. per sq. ft. in an upward direction and 61 Btu. per hr. per sq. ft. downward. This output is calculated to establish an air temperature of 60 deg. with the slab temperature being not more than 85 deg. F. Water for the coils come from a heat exchanger using steam at 125 psi. from the railroad yard's power plant. About 13,750 gph. of water are circulated through the heating coils.



CONCRETE WORK PLATFORMS carry radiant heating system piping.

Eighteen blast heaters—in effect, steam coil radiators—are placed in side-wall openings of the main building just above ground level, but below platform level. These heaters are 4 ft. 3¼ in. wide by 2 ft. 7⅛ in. high and are designed to "temper" fresh air brought in from the outside to replace fouled air vented from the structure. Each heater has a design output capacity of 800,000 Btu. per hr.

Supplementing the radiant heating system and blast heaters are 31 overhead, steam-fed unit heaters ranging in capacity from 140,000 to 700,000 Btu. per hr. Six of the largest of these, with 1½ hp. motors, are located to "cover" the locomotive doorways and are controlled by separate thermostats to operate when the air temperature drops below 50 deg., as heat is lost through the door openings. All unit heaters, placed about 15 ft. above the operating floor, also have manual controls so their fans can be operated for air circulation without heat.

Of the three systems, the radiant-heating coils are the first to operate. When the outdoor temperature drops below 35 deg., the blast heaters go into action, mainly to prevent the water in them from freezing. Then, the unit heaters switch on as required.

To remove fumes and stale air from the building, 50 electric roof ventilators with a total capacity of 643,000 cfm. are used. Ten 48-in. ventilators each with a capacity of 19,900 cfm. are installed over the heavy repair section of the building and the remaining 40 ventilators, each 36 in. with a capacity of 11,100 cfm., are over the other sections.

Both structures were designed by Pennsylvania Railroad personnel.

BOOK REVIEWS

Making Concrete

PLAIN CONCRETE—Third Edition—By Edward E. Bauer. 441 pp. McGraw-Hill Book Co., New York and London. $5.

The third edition of Edward E. Bauer's "Plain Concrete" is an ambitious attempt to bring up to date and keep his students abreast of all the new materials and methods involved in the manufacture or production of the structural material "concrete". This reviewer uses the word "attempt" because, like a standard specification, a book of this character has to be revised no sooner than it is published because of the continuous change or flux in the art of concrete production.

After a brief introduction summarizing the advance in the concrete industry and its scope, together with a list of references to indicate the source of his material, the author devotes two complete chapters to the various types of cements, both portland and a variety of others, including air-entraining cements, the fortuitous discovery of which may well be a landmark in cement history. This reviewer, however, would like to call attention to the fact that high-early strength cement is not a "special cement" (Chapter 3 is entitled "Special Cements"), but one of the standard cements listed as Type 3, and "low heat of hydration cement" is listed as Type 4. Neither should be listed as special.

The author then proceeds to the description of the various types of concrete aggregates, fine and coarse, and of admixtures entering into the composition.

In the following chapters the author presents the various theories of proportioning in great detail, followed by complete description of the application of such theories from the selection of aggregates to the calculation of the amount required of each constituent, including water. The discussion on the factors entering into concrete strength is followed by instructions on mixing, placing and curing, to obtain the required strength. This reviewer was pleased to find the emphasis placed here on curing which is all too often lacking elsewhere.

A discussion on field control of concrete precedes a specification for sampling and testing all the materials, which includes that for the amount of air entrained in concrete. This latter test should have been included as a field rather than a laboratory test.

An interesting feature is the concluding section entitled "Concrete Projects", which is a discussion on the effects of variation of the proportions of the constituents. Here again the author fails to discuss the effect of the air content on the water-cement ratio and the necessity of modifying the concrete strength based thereon when air is entrained.

This reviewer would have liked to see considerably more emphasis put on the durability of concrete than on strength, as the present aims and efforts of concrete engineers are to produce durable concrete not subject to the deterioration evident in structures to such a marked extent at the present time.—REVIEWED BY M. HIRSCHTHAL, CONCRETE ENGINEER, DELAWARE, LACKAWANNA & WESTERN R.R., HOBOKEN, N. J.

Essentials of Theater Design

THEATERS & AUDITORIUMS—By Harold Burris-Meyer and Edward C. Cole. 228 pp. Reinhold Publishing Corp., New York 18. $8.

The authors endeavor in this compact volume to set forth methods by which specifications for theaters and auditoriums may be developed. They list essential considerations in planning the elements of theaters. And they present data heretofore lacking on the relation of function to time and physical dimension, on audience activity, and on time studies of show production and presentation.

Auditoriums are treated as parts of theaters. This was done on the assumption that sooner or later an auditorium will be used as a theater, and that its efficiency in the latter role is very often the measure of its usefulness.

The book contains 15 chapters. The first chapter lists types of productions, describes existing theater structures and indicates why structures impose unwarranted limitations on production. The second chapter deals with audience traffic to, through and away from the theater, together with the architectural implications of these movements. Chapters three through six indicate how theaters should be laid out for audience seeing, hearing, safety and comfort. The remainder of the book is devoted to the acting area, backstage operation, scenery, stage machinery and production services.

Simple pen sketches are used effectively to present design details.

In Honor of Hardy Cross

NUMERICAL METHODS OF ANALYSIS IN ENGINEERING (*Successive Corrections*)—By Hardy Cross, L. E. Grinter, F. S. Shaw, R. V. Southwell, M. M. Frocht, L. M. K. Boelter, Myron Tribus, G. M. Dusinberre, Frank Baron, N. M. Newmark, and Thomas J. Higgins. 207 pp. A publication resulting from a symposium held at Illinois Institute of Technology, Chicago. Arranged and edited by L. E. Grinter. The Macmillan Co., New York, 1949. $5.80.

This welcome volume is a symposium of ten outstanding and mutually supplementary papers by distinguished authorities. The one unifying theme is the application of numerical methods of analysis (the procedure of successive corrections, in various forms) to engineering problems. Quite appropriately, the cover of the book is stamped "In Honor of Hardy Cross". As stated by Professor Grinter in his editorial preface, "Although methods of successive corrections had been used in mathematical analysis long before Hardy Cross—at least one method was used by Newton—it is clearly true that Cross provided the stimulus that gave rise to a tidal wave of interest in numerical procedures during the past twenty years."

As a further record of the source of inspiration, the first chapter consists of the classic paper by Hardy Cross, published in ASCE, TRANSACTIONS in 1932, on "Analysis of Continuous Frames by Distributing Fixed End Moments". This short paper of ten pages is notable not only as a model of clear thinking and lucid presentation, but also for its instantaneous effect on engineering thought and practical application. It produced the impetus for the widespread development of numerical procedures and for their use in engineering analysis and design.

The second chapter is a new contribution by L. E. Grinter on "Statistical State of Stress Studied by Grid Analysis". An analogous grid of vertical and horizontal members, proportioned to reproduce the elastic deformations of a solid plate or wall, is used to attack plane stress problems that are not readily solved by analytical methods. A procedure of estimating and "justifying" (adjusting and verifying) main direct stresses

and joint movements is applied, combining moment distribution and joint force relaxation.

In an appendix by Andrew J. Pyka, the grid analogy is applied to the interesting problem of determining numerically and plotting the principal stresses in a notched beam.

The next paper, "Numerical Solutions of Boundary Value Problems," by F. S. Shaw, presents the general boundary value type of problem for which the numerical methods of solution known as relaxation methods have been developed in recent years by R. V. Southwell and others.

In Chapter 4, on "The Quest for Accuracy in Computations Using Finite Differences", R. V. Southwell investigates possible approaches to higher accuracy in this type of numerical procedures identified with his name. He compares his preferred "engineer's approach" through advance to a finer mesh with the "mathematician's approach" toward an improved approximation by using expressions of higher order for the finite differences without reduction of the spacing between lines of the net.

In Chapter 5, M. M. Frocht, who is well known for his work on Photoelasticity, presents "A New Approach to the Numerical Solution of Laplace's Equation". The new contribution is his "Linear Rosette Method" for the simple and rapid determination of good initial values at interior points in boundary-value problems.

The sixth paper, on "Numerical Solutions for Thermal Systems" by L. M. K. Boelter and Myron Tribus, presents a numerical counterpart of the Schmitt-Binder graphical method of finite differences. The illustrative problem is one of heat flow through a non-homogeneous wall (two materials) resulting from a specified time-rate of change of surface temperature. Chapter 7 presents "Two Problems in Building Heating Solved Numerically," by G. M. Dusinberre.

In Chapter 8, captioned "Successive Corrections—A pattern of Thought", Frank Baron presents an illuminating philosophical classification and correlation of various numerical methods of analysis as applied to problems in diverse fields. Procedures of successive approximations, successive corrections, judicious guesses, step by step iteration, and single-step corrections are discussed and compared, and various factors influencing choice of method are outlined and illustrated.

In Chapter 9, on "Numerical Methods of Analysis of Bars, Plates, and Elastic Bodies", N. M. Newmark surveys the various approaches to numerical methods of analyzing stresses, strains, and displacements in structures under static and dynamic loadings. Maintaining a balance between physical and mathematical viewpoints, he contributes lucid presentation and improved solutions in his treatment of plane stress problems with their lattice analogies, computation of influence coefficients, finer nets, extrapolation, and the use of modified beam loads.

The closing paper is "A Survey of the Approximate Solution of Two-Dimensional Physical Problems by Variational Methods and Finite Difference Procedures", by Thomas J. Higgins. It concludes with a comprehensive bibliography of 140 references.

This book should be helpful, both as a stimulus and as a guide, to those who tackle new problems or who seek to devise new solutions. The keynote is given in the opening words of the Preface: "When a solution is impracticable, an engineer must be prepared to devise a satisfactory approximation." REVIEWED BY D. B. STEINMAN, CONSULTING ENGINEER, NEW YORK.

Miscellaneous Notes on Booklets and Reprints

A NEW PRINTING of "The Second Mile," a talk about the engineering profession made by the late William E. Wickenden, has been made by the Engineers' Council for Professional Development. Copies may be obtained from the ECPD headquarters at 29 West 39th St., New York 18 at 15c. each; 10c. for 15 or more; $5 per hundred.

"THE HOLLAND TUNNEL CHEMICAL FIRE," an 18-page report by the National Board of Fire Underwriters, 85 John St., New York 7, N. Y., records the sequence of events up to and during the fire (ENR May 19, p. 11). It also offers several suggestions aimed at preventing a recurrence. Among these are: (1) That the exhaust fans be protected against fire damage by water sprays or other means. (2) That motors and drive mechanisms be located in areas separated from the exhaust chambers to reduce the possibility of ventilation failure. (3) That combustion-suppressing drainage gutters and curb sumps and electrical equipment approved for hazardous locations be used to guard against accidental spillage of flammable liquids. (4) That critical load-bearing structural members of the ventilation ducts be protected from fire damage. (5) That first-aid fire-fighting appliances be provided within tunnels. (6) That installation of automatic sprinklers be considered.

New Engineering Books

CONTROLLING FACTORS IN ECONOMIC DEVELOPMENT—By H. G. Moulton. 397 pp. Brookings Institution, Washington 6, D. C. $4.

AUTOMOTIVE TRANSPORTATION TRENDS AND PROBLEMS—By Wilfred Owen. 154 pp. Brookings Institution, Washington 6, D. C. $2.

TANK VOLUME DETERMINATION—ITS THEORY AND PRACTICE—By H. C. Packard. 468 pp. Shell Oil Co., New York, N. Y. Limited Distribution.

STRUCTURAL DESIGN IN METALS—By C. D. Williams and E. C. Harris. 596 pp. The Ronald Press, New York 10. $6.50.

ROUTE SURVEYS—By R. R. Skelton. 531 pp. McGraw-Hill Book Co., New York 18 and London. $4.50.

POUR YOURSELF A HOUSE—By F. F. Peters. 217 pp. Whittlesey House, New York 18. $3.95.

WELDING AND CUTTING MANUAL—208 pp. Linde Air Products Co., 30 E. 42 St., New York, N. Y. $1.80.

PROCEEDINGS OF THE 48TH ANNUAL CONVENTION OF THE AMERICAN RAILWAY ENGINEERING ASSOCIATION—Vol. 50—958 pp. American Railway Engineering Assoc., 59 East Van Buren Street, Chicago 5, Ill.

HOME REPAIRS MADE EASY—By Lee Frankl. 438 pp. Doubleday & Co., New York 20, N. Y. $6.95.

THE WATTS BAR PROJECT—Technical Report No. 9—545 pp. Tennessee Valley Authority, Treasurer's Office, Knoxville, Tenn. $2.

MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION—Third Edition. 264 pp. The Associated General Contractors of America, Inc., 1227 Munsey Building, Washington, D. C. $3.

PROCEEDINGS OF THE 28TH ANNUAL MEETING OF THE HIGHWAY RESEARCH BOARD—538 pp. Highway Research Board, Washington, D. C.

STEAM POWER PLANTS—By P. J. Potter. 503 pp. The Ronald Press, New York 10, N. Y. $6.50.

HISTORY OF CHICAGO BUILDING—By Frank A. Randall. 388 pp. The University of Illinois Press, Urbana, Illinois. $4.00 paper; $5.00 cloth.

TECHNICAL DRAWING—Third Edition by F. E. Giesecke, A. Mitchell, H. C. Spencer. 851 pp. The MacMillan Co., New York and London. $4.50.

TECHNICAL SKETCHING AND VISUALIZATION FOR ENGINEERS—By H. H. Katz. 159 pp. The MacMillan Co., New York and London. $5.

DEVELOPMENTS ABROAD

New Railroads

Africa—United States technical assistance has been approved by the ECA on a preliminary survey of a railway line between Northern Rhodesia and East Africa.

The survey is being made by Sir Alexander Gibb and Partners, of London, jointly with their associates, Overseas Consultants, Inc., of New York—a group of 11 U. S. engineering firms (ENR Oct. 28, '48, page 73).

The experts will spend four months surveying suggested routes between the Rhodesian and East African railway systems. Preliminary plans call for a line from Broken Hill, in Northern Rhodesia, through Tanganyika and Kenya.

The U. S. team is headed by Paul B. Coffman, president of the Standard Research Consultants, Inc., of New York. He is accompanied by Bruce Wyle, a railway economist, and Stewart St. Clair, a geologist, mineralogist and economist.

After consultations in London, they will leave for Africa with three members of the British firm.

The ECA will pay the dollar cost of the preliminary survey, which is estimated at $40,000. A similar sum will be provided from the Colonial Development and Welfare Funds.

Peru—The Peruvian government, reports C. H. Griffis of the Chicago Tribune Press Service, has ordered construction of the Tambo del Sol-Pucalipa Railway to link the Central and Cerro de Pasco railways, connecting the port of Callao and Lima, the capital, with the navigable waters of the Ucayali River, one of the great tributaries of the upper Amazon.

This standard gauge railway, 300 miles long, will start at Tambo del Sol station on the Cerro de Pasco railway, 57 miles from the smelter site of the Cerro de Pasco Copper Corp. at Oroya. Terminal will be the river port of Pucallpa, on the Ucayali, 553 nautical miles from Iquitos, Peruvian commercial metropolis and trading center of the upper Amazon. River vessels of 3,000 tons can ascend the Amazon and Ucayali as far as Pucalipa.

School Buildings

Mexico—The Mexican Foundation for Construction of Schools, a private philanthropic organization supported by large industries and banking firms, has announced that a four million peso ($500,000) building program is to start at once.

Four large schools are to be built while a "Psychopedoagogic Rehabilitation" center is nearly finished in the Lomas de Chapultepec section of Mexico City. The schools, when finished, are to be turned over to the Secretary of Public Education.

Among the supporters of the foundation are: La Union de Productores de Azucar, who have already supplied funds for two buildings; el Banco de Industria y Commerico la Aseguradora; and la Compania de Fianzas Atlas. The latter two supplied the funds for the psycho-pedagogic center. Other contributions have been received from the Camara de Minera, the Mining Chamber of Commerce; and from the Compania de Seguros.

The foundation is considering equipping its schools with windows of plastic glass made in a Monterrey, Mexico, factory. It is said that window replacement in the Mexican Normal school, a large structure, cost 30,000 pesos recently, and it is hoped to avoid this expense in the building of future schools.

Airports

Israel—According to reports reaching military quarters in Cairo, Israel is building two new strategic airfields on the Red Sea at the head of the gulf of Aqaba. The new airfields are being built about 15 miles inland from the northernmost end of the gulf, it is said.

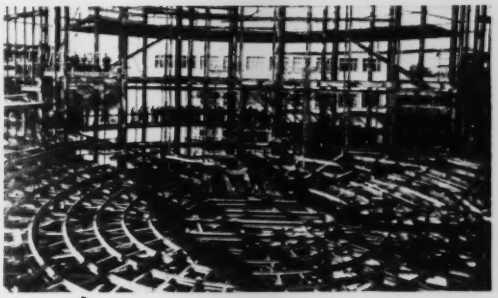
India—Indian aviation and public works officials have approved plans to extend the east-west runway at Bombay's Santa Cruz airport from 5,200 ft. to 8,000 ft. and to equip it with high intensity landing lights. In a meeting with commercial aviation officials, it was agreed that when full light and radio landing aids are installed, it will be unnecessary to take off the top of the 672-ft. hill near the airport onto which a KLM Constellation crashed recently with fatal consequences.

Mexico—Management of the Central Airport of Mexico City has ordered a complete rearrangement of facilities in order to give better service at the airport.

As a new airport building is expected to get into construction before the end of the year (bids are now in the hands of the Secretary of Communications), the revamping of the present reception building is necessarily of a temporary nature.

Among the measures being instituted are enlargement of parking facilities for private cars, elimination of many of the vending booths that blocked the lobby, a special reception center for private aircraft, and a special ramp onto the field for important passengers.

BIGGEST JOB IN FRANCE—The 17 mile, $150 million Donzere-Mondragon Canal (ENR July 31, 1947, p. 150), being built to bypass rapids in the Rhone River and to provide irrigation, includes a dam, a 69-ft.-lift lock and a 300,000-kw. hydro plant at about the midpoint of its length. Here is how these facilities look today, with lock excavation in the foreground. Elsewhere along the project, French contractors, using $2 million worth of American equipment, are attacking the 65 million cu. yd. excavation job that the Campagnie National du Rhone hopes to have completed by 1952.



Europe Building and Rebuilding

Motivation behind the work shown in these pictures is varied, but for whatever reason, Europe's construction people are hard at work. In Belgrade, (top) people from 14 to 50 work for food and clothing on projects in Tito's 5-year plan for a new city. They're finishing a university building here, with a hotel and housing next. Rome, (above left) is preparing for a Holy Year in 1950. Here, two surveyors check details of the new railway station. Frankfurt, (above right) hopes to become West Germany's capital, hence is erecting a parliament building. And London, (right) is building a new concert hall on the Thames, (Combine Photo). Other photos—Wide World).

Dutch Rebuilding

Netherlands—United States knowledge and experience in the production of brick and tile will play a part in the permanent rebuilding of war-damaged cities in Holland, the Economic Cooperation Administration said in announcing approval of a two-month study of U. S. techniques by two Dutch ceramics experts.

The project, the third approved for The Netherlands under ECA's technical assistance program, provides for visits to U. S university and industrial research laboratories by M. J. Singer, director of the Ceramics Institute at Gouda, and A. Goedewaagen, head of the laboratory of Goedewaagen's Koninklijke Pijpen en Aardewerkfabrieken, a ceramics factory at Gouda.

ECA said that Dutch cities such as Rotterdam, Arnheim and Nymegen, which have been temporarily rebuilt with waste materials since the end of the war, must be permanently rebuilt to protect the health and safety of the occupants and to aid commerce. The Netherlands requested the U. S. study project for the two experts because the production of brick, mortar and tile will play an important part in the rebuilding process.

MUNICIPAL AFFAIRS

St. Louis Slum Clearance

Mayor Joseph M. Darst of St. Louis, Mo., has announced a new plan for solving the St. Louis slum problem. He favors the creation of a municipal anti-slum commission that would possess the power to acquire title to ground for slum clearance projects, receive and administer federal grants for such projects, and to sell the sites to private urban redevelopment corporations.

Mayor Darst said that the city ordinance passed last spring creating a 25-member Anti-Slum Commission does not give the commission broad enough powers, and that under the terms of the ordinance it can only function in a purely advisory capacity. He added "there is no sense to such a commission." Consequently, while he has appointed the commission provided for in this ordinance he plans to ask the aldermen to enact new legislation along the lines he has outlined.

The commission that Mayor Darst has in mind would be much smaller than the 25-member agency now functioning and it would have powers in slum clearance matters comparable to those of the St. Louis Housing Authority in the construction of low-rental housing units.

California Housing

Some 2,300 low-cost housing units, part of a $15,000,000 slum-clearance program for San Bernardino County, Calif., will be built during the next two years in San Bernardino, Redlands, Colton, Needles, Chino and Barstow.

The new residential units will replace sub-standard dwellings and will be permanent one-story duplexes of masonry construction.

Application has been filed with the Public Housing Administration for money under the 1949 housing act.

Chemical Code for L. A.

Los Angeles, the first city to consider legislation restricting use of dangerous chemicals in industrial plants, entered final hearings on a proposed chemical code intended to prevent such disasters as the O'Connor-Electro-Plating plant explosion which took 17 lives and destroyed $2,000,000 worth of property early in 1947.

The proposed code is the result of a council ordinance adopted two months after the O'Connor blast. Representatives from chemical firms throughout the U. S. were present and heard fire prevention engineer Henry R. Boone, explain provisions of the code which would require industries using dangerous chemicals to obtain a permit, and would call for the segregation of such chemicals. In certain areas, use of dangerous chemicals would be forbidden.

Municipal Briefs

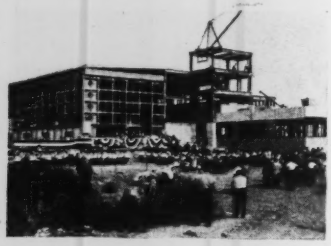
A complete restudy of the zoning classifications and policies of Niagara Falls, N. Y., with a view to revision and modernization of the zoning ordinance, is being considered by the local planning board. An outside zoning expert may be engaged to supervise the modernization job.

Citizens of Sioux Falls, S. D., will be asked to decide in a special election soon whether or not the city should issue general obligation bonds in the amount of $1,300,000 to equip, extend and improve the municipal waterworks system.

In a cooperative test by the office of the Borough President of Manhattan, N. Y. City, and the U. S. Rubber Co. six stretches of street pavement are being laid with a new meltable

(Continued on page 42)

Dedicate $8,000,000 Brooklyn sewage plant



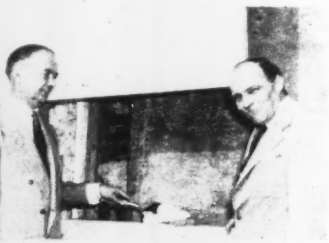
OLD AND NEW facilities at Brooklyn's new sewage plant dedication included the pump and blower house and chlorine building (top), and settling tanks (below).

Substantial completion of an $8,230,000 sewage plant in Brooklyn, N. Y., was marked recently by dedicatory ceremonies at which the cornerstone was laid.

Completion of contract for the pump and blower house and chlorine building, which are to be finished by the year's end, will leave only a landscaping contract and one "clean-up" contract to be performed. The latter arises from the fact that this plant was started during the war, when many items were not obtainable. What had to be done without during the war is now to be added. Considerable mechanical equipment was included in the contract for the two buildings.

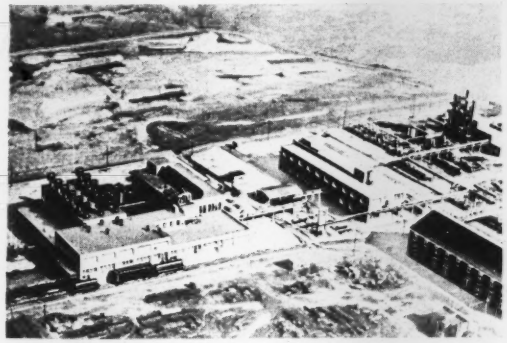
Contract was performed by Tobias, Heller & Son, Inc., at $2,839,000. Pictured to the left are the new buildings and settling tanks.

The new plant will be a major New York City contribution toward efforts to clear pollution from surrounding waters.



CORNERSTONE CEREMONIES brought together, left to right: Dr. Samuel Frant, Health Department; State Senator Herbert Sorin; Nat Math, Rent Commissioner, Councilman Sam Curtis; Brooklyn Borough President John Cashmore; and New York City Public Works Commissioner Frederick Zurmuhlen.

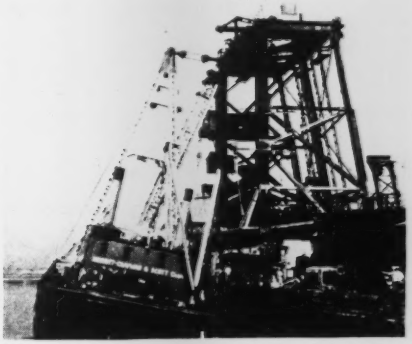
Ingenuity



Ingenuity —as demonstrated by the skilled personnel of Merritt-Chapman & Scott Corporation in raising this 225 ton coal dumper 15 feet in ten hours by a unique system combining the lifting capacities of the Corporation's Derrick *MONARCH* and two inshore based winches, all motivated by the *MONARCH'S* power plant. The original plan of dismantling and re-erecting the coal dumper was thereby discarded and money saved for the owner, the Pittston Coal Company, by this ingenious scheme!

Ingenuity —as expressed by the construction of this first mass-production streptomycin plant! After laboratory tests proved successful, production had to start—The wonder drug was desperately needed! Working in conjunction with Merck & Company's scientists and engineers, Merritt-Chapman & Scott personnel moved to the site and started construction even while process details were being worked out.

All the resourcefulness and ingenuity of both organizations were required to keep construction proceeding rapidly, yet the project was completed in record time, and streptomycin was in full production less than three years from its original discovery in the laboratory—A noteworthy acvhievement in any industry!



This same time and money saving ingenuity can be yours! This same resourcefulness, built into thousands of construction projects representing a cross section of American industry will be at your disposal when you call upon Merritt-Chapman & Scott Corporation to fulfill your next construction project. When you think construction—Think Merritt-Chapman & Scott!

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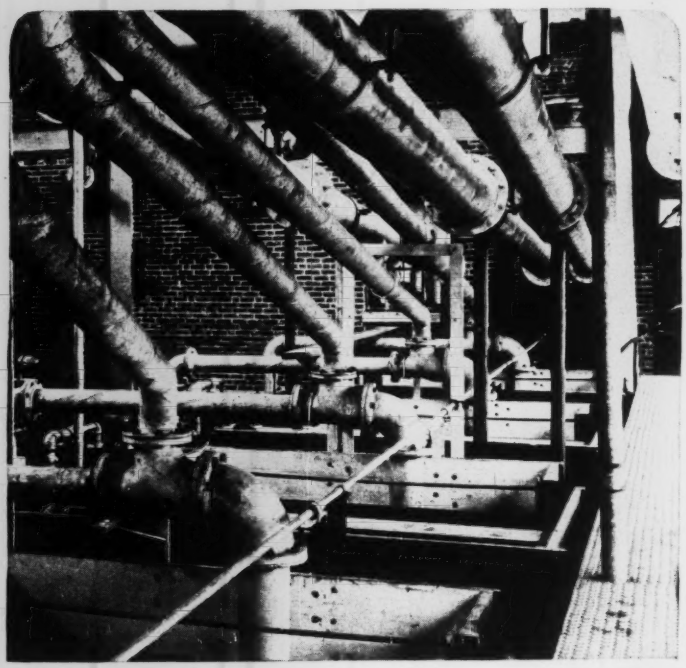

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ARMCO WELDED STEEL PIPE

rubber compound blended with the asphalt commonly used in making black-top pavement. It is said that rubber-asphalt pavement will resist cracking in winter and softening in summer. In this first use of rubber in pavement in New York City, approximately 200 tons of pavement surfacing containing rubber are being applied in areas which carry heavy traffic. They are West Side Highway, north of Chambers St.; 51st St., between Lexington and Madison Aves.; Second Ave., between 40th and 41st Sts.; Lexington Ave., between 42nd and 45th Sts.; 25th St., between First and Third Aves.; and Academy St., between Sherman and Vermilyea Aves.

Voters in several Ohio cities will be asked to approve bond issue this fall: Sidney for $972,728; Bryan, for $950,000; and Delphos, for $250,000—all for schools. Portage County voters will consider a $400,000 bond issue for an infirmary at Ravenna, while Richland County, will vote on an annex to the courthouse at Mansfield, to cost over $300,000.

In Pennsylvania the State Public School Building Authority at Harrisburg, has tentatively approved 26 new school projects throughout the state with the cost estimated at $15,000,000.

Royal W. Thompson, superintendent of streets in Hartford, Conn., is quoted as reporting a 30 percent saving in the cost of snow removal when he began to spread rock salt on Hartford's streets, while commissioners in cities like Detroit, Mich.; Portland, Me.; Malone, N. Y.; Passaic, N. J.; and others report similar substantial economies. Discussing the reasons for such savings, Edward F. Morgan, Jr., superintendent of streets in Hudson, Mass., explained them in this way. "Rock salt is less expensive to use than sand, fewer men are needed to apply it, and generally, one application is enough. Added to this, it doesn't have to be dug out of the sewers in the spring."

Recommendations for solution of the off-street parking problem in the central traffic district of Rochester, N. Y., have been outlined by the Chamber of Commerce. The city was urged to expand its system of municipal parking stations wherever possible; to consider the erection of one or two-story parking buildings close to the main shopping district; and to acquire additional lands for metered parking space at or near important traffic intersections.

It is reported that the 1950 budget

First steel pile was driven in Yonge Street, Toronto, Ont., Sept. 8, to start work on the Toronto Transportation Commission's rapid transit subway system. (ENR Sept. 15, p. 63.) Construction is by a syndicate of Canadian and U. S. construction companies, Pitts-Johnson-Drake & Perini. (Canada Pictures.)

of Syracuse, N. Y., will contain approximately $2,000,000 for a capital improvement program — twice this year's appropriation.

The Kansas City engineering firm of Howard, Needles, Tammen and Bergendoff has been selected to handle the 5-phase consulting job on the new North End Bridge and proposed expressway system at Toledo, Ohio. Announcement came from Theodore J. Kauer, state highway director, and City Manager Arnold V. Finch, who are working out details of the agreement. It will be a joint city, state and federal project.

The village of Cahokia, Ill., site of the famous prehistoric Cahokia mounds, has filed an application with the St. Louis Board of Public Service for permission to place the St. Louis end of a proposed new toll bridge across the Mississippi River at Chippewa St. and Marine Ave. The board of supervisors of St. Clair County, in which Cahokia is located, is also considering the possibilities of a bridge between Cahokia and St. Louis but the county authorities have not as yet applied for a permit to cross St. Louis streets in connection with the construction of a bridge.

The city commission of Key West, Fla., is being requested to approve a $2,000,000 slum clearance program. George M. White, head of the local housing authority says it is desired to have the Public Housing Administration earmark funds for the construction of 260 low-rental units there. Application would be made for a federal loan to pay for a detailed survey of the island's housing needs.

The proposed slum clearance program in Key West is entirely separate from a big housing development being sought by the Navy. It is unofficial reported that at least 500 units have been requested.

Akron, Ohio, city council is considering a new building code submitted by the city planning committee after five years of preparation.

A systematic program for future annexations is being considered at Indianapolis, Ind. Mayor Al Feeney says "we don't want to discourage annexation, but we want to know what such action entails, to know whether or not we can afford to annex an area before we do it."

A new $5,000,000 belt line project is now under construction at Madison, Wis., which will eliminate the traffic congestion caused by the fact that now practically all through traffic funnels into the capital square area, where it joins local traffic.

Mrs. Edith P. Weltz, first woman mayor of Yonkers, N. Y., will retire Dec. 31, but will not be out of politics. She says: "I'm going to keep watch over everything that goes on, and shoot at them from the outside. Now that they've defeated Proportional Representation, the politicians are going to try to get rid of the city manager system we worked for so long. I'm going to organize, speak, teach, inspire, try to get back city-wide elections so we'll have a chance in 1951."

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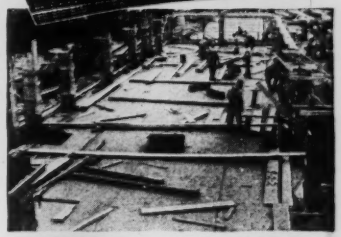

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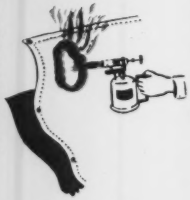

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Pecaut Industrial Supply Co., Sioux City

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Clark & Barlow Hardware Co., Chicago
Becker Equipment & Supply Co., Chicago

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MISSOURI
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Machinery & Supplies Co. Inc. Kansas City
The Victor L. Phillips Co., Kansas City

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EDUCATION and RESEARCH

English for Engineers

A long range program for relating practice in technical writing more directly to the engineering student's own particular specialty is getting under way at Rensselaer Polytechnic Institute with the fall term.

"A prime necessity in engineering education is to train students in good technical writing," C. H. Gray, head of English, pointed out in explaining the new development. "If the engineer is to see his work projects translated into reality he must be able to describe them clearly and exactly. He can't tell the whole story with a blueprint and a slide rule. If he is to receive credit for a job well done he must be able to make an intelligent report to his employer."

The gist of Dr. Gray's plan is to assign English teachers to each engineering department for work with students in planning and revising term papers, theses and technical reports.

Lath and Plaster

New uses of lath and plaster to lower the cost of homes and other on-the-site construction are reported by Armour Research Foundation of Illinois Institute of Technology. Scientists at the foundation made exhaustive tests of different types of plaster mixes and wall and ceiling construction for the U. S. Department of Commerce. Among their conclusions were:

In the past many joists have been stiffer and more costly than necessary because of a 120-year-old stress formula not applicable to modern materials or methods.

Walls can be made stronger and more resistant to plaster cracks by merely changing the position of lath for better reinforcement where greater stresses occur.

Plaster strength increases when the proportion of sand included decreases.

Proper plaster thickness and application aids resistance to cracking.

For more than a century, builders have accepted a rule that, if plaster is not to crack, the beam to which the lath is attached must not bend in service more than 1/360th of its length. Researchers found that the rule is out of date because in recent years conventional lime-sand plaster and wood lath have been replaced by stronger materials—gypsum plaster, gypsum lath, and metal lath.

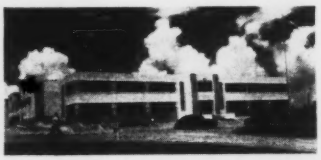
Modern methods of attaching lath to joist allow the plaster independence from much of the stress on beams. Instead of nailing the lath directly to the beam, builders now suspend it or use clips.

Educational Notes

Sponsored by the National Association of Manufacturers, 74 graduate students in engineering and science from 22 foreign countries will see American free enterprise in action by making a 10-day, 2,200-mile tour of this country. The students attended the second foreign service summer project at Massachusetts Institute of Technology. The cities they will visit include Schenectady, N. Y., Cleveland and Toledo, Ohio, Detroit, Mich., Chicago, Ill., Pittsburgh, Pa., and Camden, N. J.

Eight British engineers, the first of a group of about 50 selected to take graduate study courses and training in American production methods have arrived and are being placed in leading technical schools for the fall term. The project, arranged under the Economic Cooperation Administration's technical assistance program is sponsored by the British government in an effort to increase industrial productivity.

With three buildings already under construction on the University of Idaho campus at a total cost of $1,805,000, bids will be called later this year on a $700,000 engineering classroom building and early next year on two other structures estimated to cost another $1,250,000. During the next 10 years, university officials hope to complete eight more buildings at Moscow. Work now under way includes a $250,000 addition to the engineering laboratory, a $1,000,000 agricultural science building and a $600,000 addition to the student union building.



LABORATORY ADDITION — Recently the Concrete Research Division of the Waterways Experiment Station, Corps of Engineers, moved into a new two-story laboratory addition at Clinton, Miss. Staff offices formerly were located in an adjacent prisoner-of-war camp. The 155x30-ft. addition, costing about $300,000, contains offices on the ground floor, with chemistry and petrography laboratories on the second floor. The single-story, 180x140-ft. laboratory was completed in 1947 at a cost of $400,000. Installed equipment, valued at $400,000, brings the total valuation of the laboratory up to $1,100,000. Herbert K. Cook, chief, Concrete Research Division, is in charge of the laboratory, reporting to Lt. Col. Ralph D. King, director of the Waterways Experiment Station.

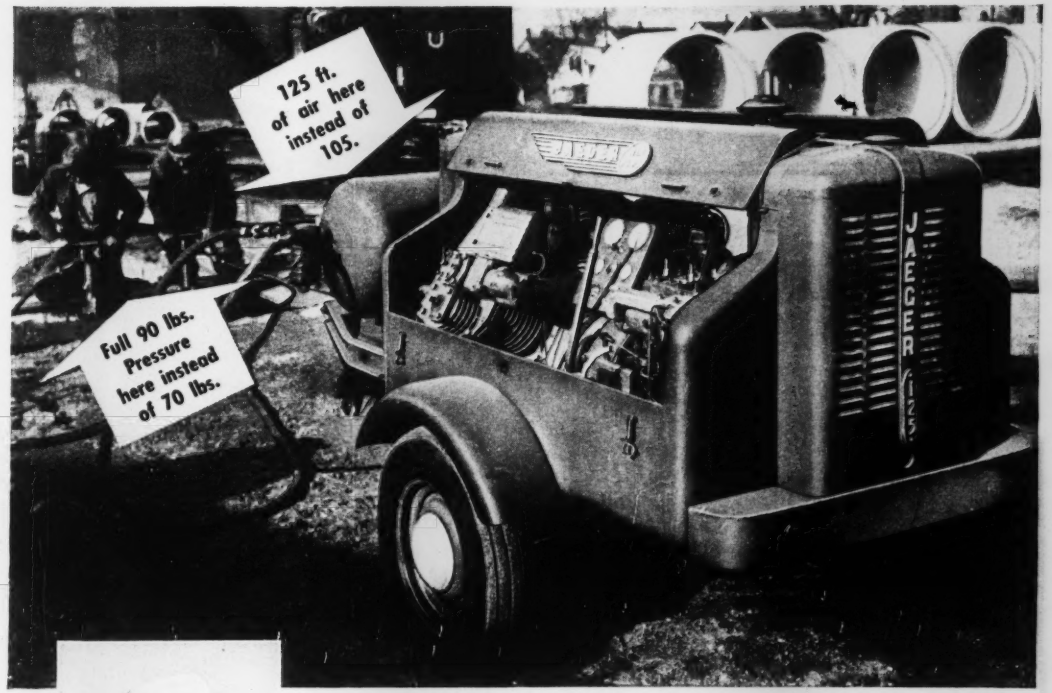
Faculty Notes

Clarence B. Monk, Jr., of Raymond, Ill., has been appointed instructor in civil engineering at Illinois Institute of Technology. He taught mechanics and strength of materials at the University of Illinois for the last two years. Prior to that he was at the University of Chicago. He received his bachelor's degree in architectural engineering at Pennsylvania State College in 1942, and his master's degree at the University of Illinois in 1948.

Chester L. Allen, who retired in June as head of the department of civil engineering at Michigan State College, has joined the faculty of Clarkson College, Potsdam, N. Y., to be associate professor of civil engineering. Professor Allen had been a member of the Michigan State College faculty since 1919 and served as head of the civil engineering department since 1924. He was graduated from the Massachusetts Institute of Technology in 1905 with the degree of bachelor of science. In 1917 he received his master's degree from Pennsylvania State College, where he was a member of the faculty from 1911-15. He also served as head of the civil engineering department at Gettysburg College from 1915-18.

Melvin Johnson, who received the degree of doctor of philosophy in civil engineering, University of Illinois in June, 1948, has been named assistant professor of civil engineering in the Georgia Institute of Technology. After taking his higher degree at Illinois, he became associated with J. B. Dennenbaum and Co., Houston, Tex., as a structural design engineer.

James Gordon Clark, who has been associate professor of civil engineering, University of Illinois, giving two advanced undergraduate and two graduate courses in aircraft structures, has been named professor. He was graduated from the civil engineering department, University of Illinois, in 1935, and received his master of science degree, bridge design major, in 1939.



this Jaeger user keeps costs down

doing 4 days' work in 3

Barney Massa, Ft. Wayne, Indiana sewer contractor, learned years ago that he could drive sheeting 30% to 40% faster with full 90 lbs. air pressure at the tool than he could with a pressure of 70 lbs. To maintain full pressure he used to operate two heavy drivers with a 160 ft. compressor instead of a 105.

Today he's using a Jaeger "new standard" Model 125 to do the same work at lower cost, and continues to sheet as many feet of trench in 3 days as would take 4 days to do with any 105 ft. compressor.

Leading distributors in 130 cities of the U. S. and Canada sell, rent and service Jaeger equipment.

"Old standard" compressor ratings, established back in 1932, don't fit today's tools. Jaeger "new standard" ratings do. From the Model 75, for a heavy duty breaker, up to the Model 600 for 2 heavy wagon drills, every Jaeger "Air Plus" rating is designed to give you steady full pressure and as much as 30% to 40% more production every hour you work. Ask your Jaeger distributor to prove this *on your* job. The Jaeger Machine Company, Columbus 16, Ohio.

Note: Because of "Fuel Miser" speed control, Jaegers use no more fuel than smaller units when not delivering more air.

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COMPRESSORS • DIAGONAL SCREED FINISHERS
SCREW SPREADERS • BITUMINOUS PAVERS

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Make money saving decisions. See why initial cost is a minor factor. Choose the system with the lowest *long range* cost . . . and really save money. Be sure it will handle your present AND future loads.

Selecting such a system can be easy! Our engineers have met and answered power distribution problems for *all* types of industries. This broad experience is available to help you adapt distribution systems to *your* specific problems.

And, as a further service to industry, we have prepared this valuable information in the form of . . .

A new 34-page Booklet: "Industrial Plant Distribution Systems", B-4045. Fact-filled pages and colorful diagrams completely explain the eleven basic systems most widely used in industry today. It will provide answers to many of your problems that have gone unsolved.

- **A System Selector:** A wealth of information condensed to a pocket-sized selector! In a matter of minutes you can make preliminary decisions on the system that best answers *your* requirements.
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Need Steel for Building Projects?

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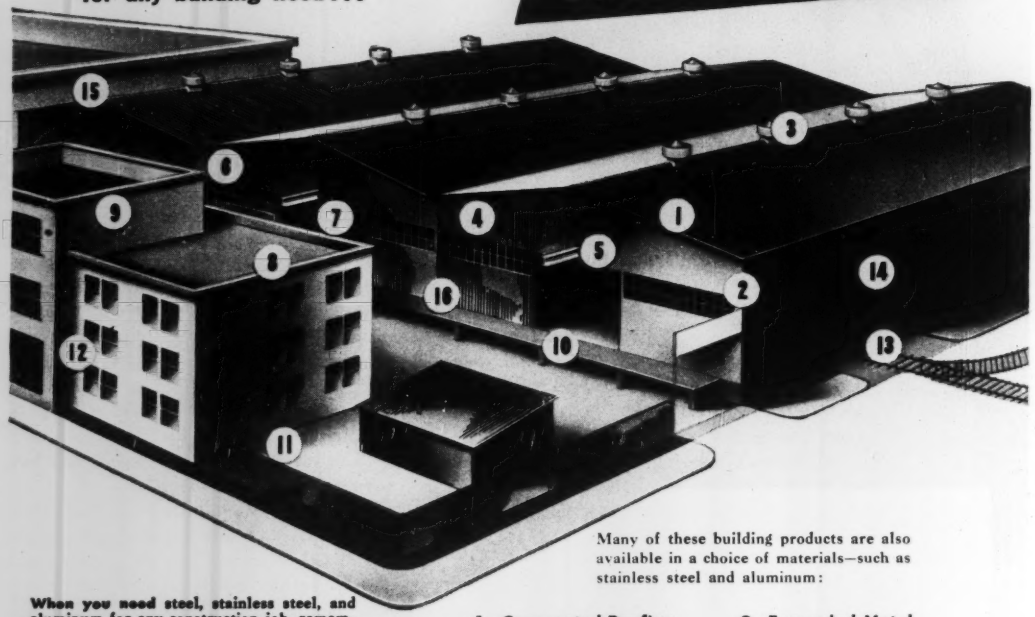
WE'VE GOT IT!



Many of these building products are also available in a choice of materials—such as stainless steel and aluminum:

1. Corrugated Roofing
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5. Beams
6. Angles
7. Channels
8. Dardelet Rivet Bolts
9. Expanded Metal
10. Floor Plates
11. Reinforcing Bars
12. Window and Door Trim
13. Rails and Fittings
14. Welding Rod
15. Plates
16. Bars

When you need steel, stainless steel, and aluminum for any construction job, remember to call us. You'll find us the *one* dependable source for *all* your requirements. You'll find, too, that your orders will be handled quickly and efficiently, and that all your requests—whether actual orders or just for information—will be given our undivided and courteous attention.

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MEN AND JOBS

A. F. Dappert, left, newly-appointed executive secretary of the N. Y. State Water Pollution Control Board, confers with Dr. Herman E. Hilleboe, chairman of that board and State Commissioner of Health. The board was created within the State Department of Health by the last Legislature. Mr. Dappert has been principal sanitary engineer of the department since 1930. His new chief task will be to develop the state's water pollution control program. He is a University of Illinois graduate, 1920, and got his Master of Science degree in sanitary and municipal engineering from Harvard. He is a veteran of both world wars. In the last, he was Army Sanitary Engineer representative for Military Government in the Pacific.

W. L. Powers, head of the soils department of Oregon State College experiment station, has been granted a leave of absence to make land and crop appraisals in Turkey for the Knappen Engineering Co., New York, which has a contract to develop the Gedis River Reclamation Project. Powers was consulting appraiser for the U. S. Bureau of Reclamation on the Klamath Valley Project in 1934, and he classified 300,000 acres of Columbia River Basin Project lands in 1941. From 1942 to 1944 he was consultant for the Venezuela department of public works.

Lt. Col. Jeff W. Boucher, chief of the operations division of the Memphis district, Corps of Engineers, has been transferred to Vicksburg, Miss., to be secretary of the Mississippi River Commission, and assistant to Brig. Gen. P. A. Feringa, division engineer.

Recent changes in the engineering department of the Canadian Pacific Railway have been: **Peter C. Fuller,** transferred from Woodstock, N. B. to Schreiber, Ont., as division engineer; **Richard W. Coburn,** transferred from assistant engineer at St. John, N. B. to Woodstock, as roadmaster; **J. E. Reynolds,** transferred from assistant engineer on the special engineers' staff at Toronto, Ont., to St. John, as assistant engineer. Mr. Fuller is a graduate of the McGill University engineering school, Montreal. He has been a draughtsman, transitman, assistant roadmaster, roadmaster. R. W. Coburn is a graduate of Queen's University, Kingston, Ont., in engineering, was a transitman before becoming assistant engineer at St. John. He is a son of G. W. Coburn, retired division engineer at Brandon, Man. and Souris, Man. J. E. Reynolds, is an engineering graduate of the University of Toronto, and was a transitman at Sudbury, Ont. before becoming assistant engineer, maintenance of way, at Toronto, Ont.

Col. Oscar B. Beasley has taken command of the engineer research and development laboratories at Fort Belvoir, Va., succeeding **Col. John C. Arrowsmith,** soon to become comptroller in the Army Security Agency in Washington, D. C. Colonel Beasley moves to his Fort Belvoir post from Fort Benning, Ga., where he has served as chairman of the field engineer committee at the infantry school. During the war, he spent more than three years in the Mediterranean and European theaters and commanded the 40th Engineer Combat Regiment while attached to the 7th Army.

Lieut. Col. D. A. Elliget, executive officer of Portland district, Corps of Engineers, has become acting district with the advancement of Col. O. E. Walsh to North Pacific division engineer. Col. Walsh succeeded Col. Theron D. Weaver, who is being transferred to Bremerhaven, Germany.

Among the recent additions to the staff of the United States Testing Co. laboratories, Hoboken N. J., is **Michael Powsner,** a graduate of Cooper Union Institute of Technology and New York University graduate school. He went to the testing company from the Research and Development Branch, Office of the Quartermaster General, Washington D. C., where he gained wide experience in the development of specifications and testing of all types of building and construction materials. He is now working as an assistant supervisor in the recently formed Engineering Inspection Division of the company.

Carl G. Krueger, who received his civil engineering degree at the University of Wisconsin and who for the last six years has served as supervisor of the Pisgah-Croatan National Forests at Asheville, N. C., has been named supervisor of the Texas National Forests with headquarters at Lufkin.

New appointments announced by the Pennsylvania Department of Health: **Ralph W. Woodring,** Bethlehem, senior sanitary engineer; **Charles E. Baer, Lewiston,** sanitary engineer; **Charles A. Benckert,** Easton, **Russell S. Klingensmith,** Ford City, and **Serzio A. Savago,** Easton, all junior sanitary engineers; Edgar A. Stoudt, Philadelphia, senior assistant sanitary engineer. At the same time the department announced the withdrawal of **William A. Gorman,** Bethlehem, as principal sanitary engineer.

A. P. Hancock, former city manager of Amarillo, Tex., for several years, has been appointed city manager of Port Arthur. He is a Texas A&M graduate and has been city manager of several cities in Texas.

R. W. Balls of Lawrence, Kan., assistant engineer for Douglas County the last seven years, has become county engineer of Lyon County. Balls succeeds **E. C. Goldsmith,** who has been on the job six and a half years.

Now-for your protection

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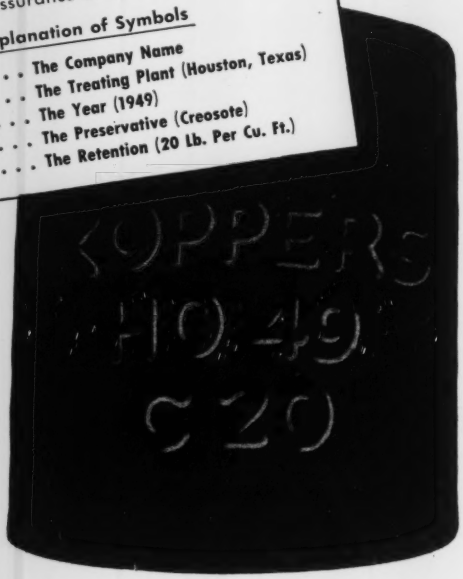
ITS PRESSURE-CREOSOTED PILES!

For your protection, Koppers now burns its brand into every one of its pressure-creosoted piles; this brand is your assurance of quality.

Explanation of Symbols

KOPPERS	The Company Name
HO	The Treating Plant (Houston, Texas)
49	The Year (1949)
C	The Preservative (Creosote)
20	The Retention (20 Lb. Per Cu. Ft.)



TYPICAL BRAND

KOPPERS Pressure-Creosoted Timber Piles—foundation or marine—provide economical, long-lasting foundations. To these advantages, add the Koppers Brand. The Koppers Brand is placed 10 feet from the butt of each pile; it plainly tells you and your inspector what you are getting in preservative and retention. You can now buy these safe and dependable branded piles.

Prompt Deliveries

Large stocks of Koppers Pressure-Creosoted Piles, in all needed sizes, are carried by Koppers. From its 22 strategically-located Wood-Treating Plants, Koppers can make prompt shipment to any section of the United States.

KOPPERS PRESSURE-TREATED WOOD

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

R. K. Durant, right, construction engineer on the Bureau of Reclamation's Friant-Kern Canal in California's Central Valley project, points to spot 70-mi. below Frian Dam where water was delivered for the first time on July 9. His assistant S. S. Leonard, seems to approve. The 153-mi. $57,549,000 canal is about 75 percent complete or under construction, with contracts for the remainder expected to be let soon. Work was begun in 1945.

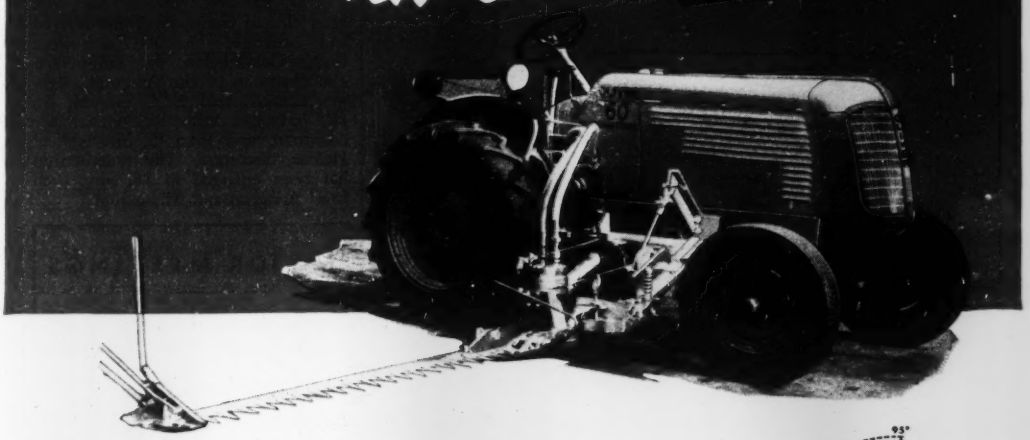
Zoyd M. Flaler, service director and city engineer at Coldwater, Ohio, has been appointed chief of the new division of reclamation in the Ohio State Agriculture Department. The division will enforce Ohio's new strip mine control law, which sets up more rigid control of the industry and provides for reclamation of stripped areas. Earlier Flaler served seven years as Mercer County engineer at Celina, seven years with General Electric Co., and earlier was with the Ohio Highway Department.

Owen T. Clark has resigned as chief of the engineering bureau of the city water division at Toledo, Ohio, to join the Lock Joint Pipe Co., Newark, N. J., as consultant and chief engineer. His first assignment will take him to Ciudad Trujillo, capital of the Dominican Republic, where he will be his firm's chief engineer in charge of waterworks installations. **William C. Jones** has been named acting head of the engineering bureau.

Lt. Col. O. J. Rohde is the new replacement executive officer for the Little Rock, Ark., district, Corps of Engineers, while **Lt. Col. Kenneth H. Newton** is attending the Command and General Staff College, Ft. Leavenworth, Kan. Lt. Col. Rohde is a West Point graduate, 1935. During the war he served in North Africa, Italy, and the Philippines. He also was a professor of military science and tactics. Before the war he worked in Alaska.

P. L. Edwards of Nashville, of the Tennessee Department of Highways & Public Works, has become head of the materials and tests division, succeeding **O. W. Hovis,** who has been transferred.

Now a Hydraulic Driven Cutter Bar ..that cuts costs!

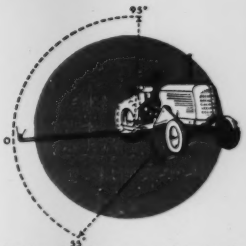


Here's the really new mowing unit that cuts mowing costs on anything from thick matted grass to moderate brush. Oliver Model "60" and "77" Industrial Wheel Tractors and Davco Hydro-Mowers assure lowest cost per mile of mowing. Here's why!

The hydraulic motor drive of the knife makes possible smooth operation. Hydraulic safety mechanism practically eliminates damage to the knife that might be caused by refuse in the mowing path.

This efficient, new unit will mow at any angle from 55° below to 95° above the horizontal. Constant speed hydraulic power enables the mower to cut right up to an obstruction. Finger-tip control that instantly raises the cutter bar hydraulically to clear obstructions... full visibility . . . and lack of vibration effectively reduce operator fatigue . . . permit more work to be done per day.

Oliver Industrial Wheel Tractors and Davco Hydro-Mowers are the ideal units for highways, railroad right-of-ways, parks, airports, and plant grounds. Your Oliver Industrial Distributor will be happy to give you all the facts on lower mowing costs or, write The Oliver Corporation, Industrial Division, 19300 Euclid Avenue, Cleveland 17, Ohio.



Hydraulically operated cutter bar will mow at any angle from 55° below to 95° above the horizontal. The shoe can be raised 18 inches above the ground level.

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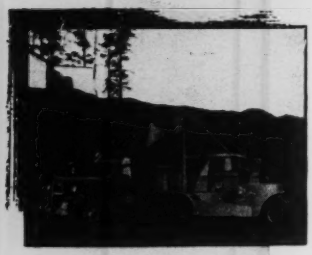
VERSATILE PROFIT-MAKER

SCOOP
MODEL "C"



Loading is easier, more practical. High ground clearance and shorter turning radius.

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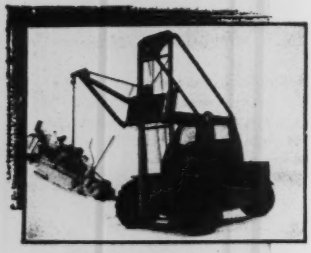
CRANE BOOM

CONCRETE HOPPER

FERTILIZER FORK



Lifts 4,000 pounds. Hoisting power is taken from the front of the engine to permit uninterrupted hoisting.

One machine—6 jobs

Built at the request of contractors, the Wagnermobile Scoop Model "C" saves time, labor costs by its many efficient uses.

- Transports, elevates and pours concrete.
- Shovels and loads dirt, etc.
- Lifts and stacks lumber and other materials.
- Handles fertilizer, hay and straw.
- Lifts heavy equipment.
- Reaches extra height.

Attachments:

- ¾ cubic yard concrete hopper.
- Scoops in 5 sizes.
- Lift fork with 2, 3 or 4 prongs.
- Special fork with tines for fertilizer, or hay.
- Crane boom.
- Track extensions up to a total of 26 ft.

These six attachments, quickly changed mean profit on the job. Wagnermobile Scoop helps you complete contracts faster.

Hydraulic controls.
Power steering-maneuverability.
Planetary drive—more power.
4 speeds forward, 4 speeds back.

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Elections and Activities

Harry E. Balmer, Leo I. Hain, and Alfred C. Alspach have been appointed to the Lancaster, Pa., City Housing Authority by Governor Duff. They succeed John C. Truxel and C. W. Good whose terms expired and Lester W. Hoover, who resigned.

J. B. Lambert, Helena, Ark., has been elected chairman of the revived and enlarged Arkansas-Mississippi Bridge Commission. Mr. Lambert is also chairman of the Arkansas Highway Commission. E. C. Brewer, Jr., of Clarksdale, Miss., was named vice chairman, and John C. Sheffield of Helena, Secretary. The membership has been enlarged to 18, nine each from Arkansas and Mississippi.

MAJOR MEETINGS

American Shore and Beach Preservation Association, Hotel Astor, New York City, Oct. 10-11.

American Associations of State Highway Officials, Gunter Hotel, San Antonio, Tex., Oct. 10-14.

American Society of Planning Officials, Hotel Statler, Cleveland, Ohio, Oct. 10-12.

American Society for Testing Materials—First Pacific Area National Meeting, Fairmont Hotel, San Francisco, Calif., Oct. 10-14.

Federation of Sewage Works Associations, Hotel Statler, Boston, Mass., Oct. 17-20.

Metal Congress and Exhibition, also American Welding Society, Public Auditorium, Cleveland, Ohio, Oct. 17-21.

American Public Health Association, Hotel Statler and Hotel New Yorker, New York City, Oct. 24-28.

37th National Safety Congress, Stevens Hotel, Chicago, Oct. 24-28.

National Conference on Industrial Hydraulics, Sheraton Hotel, Chicago, Ill., Oct. 26-27.

Engineers Council for Professional Development, Edgewater Beach Hotel, Chicago, Oct. 28-29.

American Institute of Steel Construction, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 31-Nov. 3.

Building Officials Conference of America, Wardman Park Hotel, Washington, D. C., Oct. 31-Nov. 4.

National Reclamation Association, Hotel Newhouse, Salt Lake City, Utah, Nov. 2-4.

American Society of Civil Engineers, fall meeting, Hotel Statler, Washington, D. C., Nov. 2-4.

National Council of State Boards of Engineering Examiners, Sheraton Plaza Hotel, Daytona Beach, Fla., Nov. 10-12.

National Association of Housing Officials, Hotel Statler, Boston, Mass., Nov. 13-16.

OBITUARY

Harry L. Bosley, 54, highway engineer for the Public Roads Administration for 28 years, died Aug. 29 in Bethesda, Md. A graduate of the University of Maryland, during the war he served in the Army's Chemical Warfare Division.

Charles John Freeman, 63, civil engineer of Seattle, Wash., died Sept. 4. Born in St. Paul, Minn., he had lived the last 30 years at Seattle, where he was assistant district engineer in the civil engineering department of the Northern Pacific Railway.

Welby Lee Ashby, 80, retired supervisor of construction at Fort Myer, Va., died Aug. 30 in Washington, D. C.

Harold C. Foy, 41, manager for the Brown County, Tex., water improvement district No. 1, which operates Lake Brownwood and Brownwood's water supply and irrigation systems, died at Brownwood on Aug. 24. He was educated in engineering at Texas A. and M. College and served as engineer with the Texas Highway Department for several years. He also was chief of the post engineer Office 3 utilities' department at Camp Bowie at Brownwood, and was engineer in the building of the Naval Air Station at Corpus Christi, and Camp Bowie at Brownwood.

Roy W. Hutchinson, 77, for many years a civil engineer with headquarters at Melrose, Mass., died at Mont Vernon, N. H., on Sept. 7.

William N. Hazen, 80, who retired 10 years ago after 25 years as assistant structural engineer of the N. Y. Central Railroad, died at Orange, N. J., Sept. 13. He took his engineering degree from Dartmouth College in 1888, and was a partner in the former Baltimore engineering firm of Frank & Hazen.

William C. Whyte, 80, early Montana engineer, died at Anaconda Sept. 15. A native of Scotland, he came to the United States in 1887, and joined the engineering staff of the Great Northern Railroad. He helped build the Great Northern tracks into Montana in the early '90s, and in 1892 went with the Anaconda Copper Mining Co. He was chief engineer for construction of the Butte, Anaconda and Pacific Railroad, over which ore from Butte's mines is hauled to Anaconda smelters.

PROFIT AT BOTH ENDS

DUO-WAY *Scoop*

Dozer at one end... Scoop at the other

Both labor and equipment costs are cut by this versatile machine. It performs four operations: loader, dozer, truck and tractor—all in one. More profit.

An 84-inch, full size dozer blade dozes out a bank...then turns around...

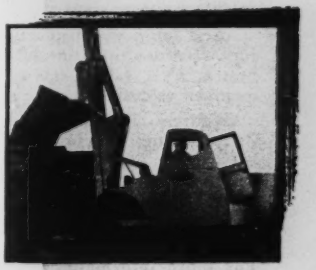
1 cubic yard scoop at the other end scoops up the loose dirt, lifts and loads it.

Duo-way Scoop features:

- Driver in sidesaddle position for all around vision and perfect control.
- Planetary drive for complete power output.
- All hydraulic controlled.
- Special tilt control track tilts 12° back, 9° forward.
- Top section folds down to 9 ft. 6 in. for low road clearance.
- Highway speed up to 25 m.p.h.
- 4 speeds forward, 4 speeds back.

Four operations performed by one machine, the Duo-way Scoop. It means more profit on every job.

Dozer blade: 3000 lbs. down pressure can be applied. Scoop can be filled on other end for ballast.



Scoop lifts to a height of 14 ft. (easy loading). Additional height available by special order.

Write today for literature and address of your nearest dealer.

MIXERMOBILE MANUFACTURERS

6855 N. E. HALSEY STREET, PORTLAND 16, OREGON

Have you considered AVA CABLES to increase power load without changing present raceways?

If you're up against the problem of increasing power load without increasing raceway size, here's a practical solution: rewire with General Electric Deltabeston® asbestos-varnished cambric cables.

Yes, on many electrical construction or modernization jobs in dry locations,* where heavy loads are involved, you may be able to work substantial savings with Deltabeston cables.

Deltabeston cables are insulated with heat-beating asbestos . . . are built for locations where operating temperatures are usually high. When used at normal ambient temperatures, they can safely carry far greater loads for their size than building wires with other kinds of insulation. In some instances, this heat-defying insulation actually enables Deltabeston AVA cables to deliver up to 49% more current per raceway.†

And for new construction, too, they can often effect real savings. Because their insulation permits smaller conductors, Deltabeston AVA cables can actually cut raceway size requirements as much as 40%.‡

To you, Deltabeston AVA cables mean *installation speed*, because they can help on many jobs by reducing the size of cables you put in — *material savings*, because AVA cables can safely carry extra current per raceway — *weight savings*, because small size means light weight.

It will pay you to look into the suitability of General Electric Deltabeston AVA cables for all your jobs involving heavy loads. For more information, consult your General Electric wire and cable distributor.

For a free folder that gives detailed information, write for Bulletin 19-159. Address Section W59-1032, Construction Materials Dept., General Electric Company, Bridgeport 2, Conn.

*As defined by the National Electrical Code.

† The figure was worked out for AVA cables at 1000 MCM. Larger and smaller sizes give similar savings.

‡ This figure was worked out for a load of 470 amperes. Similar savings can be realized for other loads.

GENERAL ELECTRIC

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
November Materials and Labor Prices will appear in the November 10, 1949 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots incl. $1.00 per bbl. for bags, cash. dis. not deducted			SAND AND GRAVEL Per ton. carload lots			CRUSHED STONE Per ton. carload lots		CRUSHED SLAG Per ton. carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixe. 1:2:4, over. 50 c.y., del.
	Cloth	Paper	Bulk	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$4.11	$3.36	$3.05	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.1725	$0.1725	$11.00
Baltimore	4.09	3.39	3.14	2.40‡*a*	2.40‡*a*	1.95‡*a*	2.60‡*a*	2.70‡*a*	2.45‡*a*	2.45‡*a*	.16*a*	.16*a*	10.25
Birmingham	3.80	3.05	....	2.06	2.06	1.66	2.50	2.50	1.00	1.20	.165	.165	7.75
Boston	4.37	3.57	3.31	2.50*a*	2.50*a*	2.50*a*	1.60*a*	1.70*a*	....	....	.17	.185*a*	10.45*h*
Chicago	3.63/3.69	2.82/2.89	2.58/2.64	2.75‡*b*	2.75‡*b*	3.20‡*b*	2.75‡*b*	2.75‡*b*	2.00‡	2.00‡	.20	.20*b*	....
Cincinnati	4.14	3.26	3.08	1.85‡*c*	1.85‡*c*	1.75‡*c*	2.20‡*h*	2.20‡*h*	1.50	1.50	.19	.205	10.60*d*
Cleveland	3.83	3.03	2.73	1.90*def*	1.65*df*	1.55*d*	3.55‡*a*	3.55‡*a*	2.75	2.75	....	.21	11.80*g*
Dallas	3.57	2.82	2.52	2.00	2.15	1.75	2.10	2.15	....	....	.089*e*	.125	9.30
Denver	....	3.54	3.29	1.85	2.00	1.15	....	....	....	....	.20	.23*a*	9.65
Detroit	3.78	2.98	2.73	3.25‡*b*	2.95‡*b*	3.00‡*b*	3.00‡	3.00‡	3.00‡	3.00‡	.17	.18*a*	9.15*f*
Kansas City	3.91	3.16	2.85	1.95	1.95	1.30	1.45*d*	1.45*d*	....	....	.15*aq*	.20*eh*	10.40*b*
Los Angeles	....	3.72*a*	3.32*a*	1.94‡*a*	2.04‡*a*	1.74‡*a*	1.92‡*a*	1.92‡*a*	....	....	....	.075*f*	9.70*bh*
Minneapolis	4.13*cd*	3.33*cd*	3.07*cd*	2.20‡*aq*	2.20‡*aq*	1.35‡*aq*	2.50‡*aq*	2.50‡*aq*	....	....	.21*i*	....	10.30*fi*
Montreal	....	2.46*ac*	2.31*ac*	.....	2.50*hi*	2.00*i*	.85*ij*	1.10*ij*	....	....	.22	.16*a*	9.05*ek*
New Orleans	....	2.90*e*	2.65*e*	2.32	2.32	1.82	....	....	1.05	1.25	.23	....	12.40
New York	4.21	3.41	3.15	2.00*bk*	2.00*bk*	1.45*bk*	2.25*bl*	2.25*bl*	....	....	.18*h*	.18*ah*	10.50*a*
Philadelphia	3.93/4.23‡	3.13/3.43‡	2.87/3.17‡	2.45‡	2.55‡	2.05‡	1.90‡	1.95‡	1.50	1.50	18/.22	....	10.80
Pittsburgh	3.90	3.18	2.85	2.05‡	2.05‡	3.00‡	2.50‡	2.50‡	2.05	2.05	.22*d*	.22*d*	10.35
St. Louis	3.74/3.80*b*	2.94/3.05*b*	2.75*b*	2.60‡*am*	2.40‡*am*	2.00/2.40‡*am*	1.60*j*	1.60*j*	1.15	1.15	.215	.24*es*	10.40
San Francisco	....	3.39	2.99	1.84	1.84	1.94	1.94	....	....	....	....	.25*c*	10.75
Seattle	....	3.45*a*	2.95*a*	2.75‡*bm*	2.75‡*bm*	2.75‡*bm*	3.50‡*bm*	3.50‡*bm*	....	....	.22*j*	.3135	9.75*j*

‡ Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *d* F.o.b. plant. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson River. *m* Less 2% for cash.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5½ x 8 x 12 in. *f* 4 x 8 x 12 std. wgt. *g* F.o.b. truck at job. *h* F.o.b. plant. *i* Less 2% for cash. *j* Less 1% for cash.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10-100 cu. brackets. *d* Truck loads up to 500 cu. yds. *e* 2,000 lb. coner. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For cloth bags, add $1.05 per bbl.; 25¢ refund allowed for each returnable bag; for paper bags add 25¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.40†	Buffington, Ind.	$2.20	Steelton, Minn.	$2.40	Muskegon, Mich.	$2.40†	Toledo, O.	$2.40†
Cinchfield, Ga.	2.40†	Independence, Kan.	2.30	Leeds, Ala.	2.25	Saginaw, Mich.	2.35†	Milwaukee, Wis.	2.40†
Kingsport, Tenn.	2.40†	Hannibal, Mo.	2.35	Duluth, Minn.	2.40	Wyandotte, Mich.	2.40†	Green Bay, Wis.	2.40†
West Des Moines, Iowa	2.30†	Northampton, Pa.	2.40	Hudson, N. Y.	2.30	Buffalo, N. Y.	2.40†	Ironton, O.	2.30
Nazareth Pa.	2.40†	Universal, Pa.	2.40	Alpena, Mich.	2.25†	Oswego, N. Y.	2.50†	Montreal City	2.13
Bath, Pa.	2.40†	Waco, Tex. (+ 9¢ tax)	2.20	Detroit, Mich.	2.40†	Cleveland, O.	2.40†	W. Winfield, Pa.	2.40†

‡ *Prices to hold for fourth quarter of* 1949.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baltimore	150.00‡	57.70‡	.....	$22.00	.....	$.09	$0.145	$.09	$.165	$.09*i*	$.09	$0.11
Birmingham	.....	32.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50*a*	$35.50*a*	.1036*a*	.185*a*	.115*aw*	.205*aw*	.10*a*	.113*a*	.205*a*
Chicago	155.00‡*a*	85.00/88.00‡*b*	2.70/3.65‡*f*	20.25*b*	30.25*b*	19.25*bv*	29.25*bv*	.0875*bw*	.16*w*	.075*b*	.1025/.1075*b*	.15/.1675*b*
Cincinnati	.....	.....	.....	23.40*k*	.....	.1025	.0990	.0965*w*	.0965	.....	.....	.....
Cleveland	.....	49.00‡	3.64*g*	25.00	35.00	25.00*v*	34.50*v*	.11*w*	.22*w*	.10	.12	.25
Dallas	*e*	40.00	*e*	23.95	42.97	.1012	.1898	26.99	47.77	.0987	.1062	.1423
Denver	.....	43.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	.....	.....	28.45	.....	.125	.....	.1188*w*	.....	.....	.....	.1925
Kansas City	.....	40.00*d*	.....	19.05*cl*	.....	.....	.....	.075*cw*	.0775*w*	.065*c*	.....	.....
Los Angeles	*e*	.....	*e*	13.50*dm*	.....	13.50*dv*	.....	15.00*d*	.....	13.50*dv*	.0775*fj*	.1575*fj*
Minneapolis	.....	.....	2.76*h*	24.00	35.00	22.00*v*	33.00*v*	24.00	35.00	.085	.12	.22
Montreal	137.00	*e*	*e*	25.00*n*	34.65*n*	15.70*nu*	20.05*nu*	15.70*nu*	17.70*nu*	14.20*ns*	.174*n*	.215*ns*
New Orleans	.....	.....	.....	16.50*e*	....*o*	16.50*ev*	.....*o*	.08*ew*	.....*o*	.0775	.08	.1425*q*
New York	.....	.....	2.35*f*	25.50	37.86*q*	24.50*v*	43.88*qv*	.1040*w*	.1867*qw*	.0990	.1040	.1847*q*
Philadelphia	150.00	110.00	4.06	23.00	.....	22.00*v*	.....	.095*w*	.....	.....	.....	.....
Pittsburgh	165.00	42.00	4.50	22.00	36.00	.11	.23	27.00	37.00	.095	.10	.11
St. Louis	.....	.....	.....	21.65*f*	.....	16.48	.....	.0925*w*	.....	.15	.1081	.1075
San Francisco	.....	57.75*c*	.....	15.50*g*	31.00*gp*	15.50*gkv*	.....	17.50*g*	.....	.....	.09	.16
Seattle	.....	.....	.....	15.50*h*	36.00*h*	16.00*hv*	.....	17.50*h*	21.50*hr*	16.00*hv*	.08*h*	.19*h*

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* F.o.b. Buffalo, Kans. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Englewood, Calif. *k* 50–300 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* Use of reconditioned drums. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 55-gal. drums. *u* Per 100 gal. *v* Per ton. *w* Per gal.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT. SHAPES–PLATE	REINF. BARS*ab* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton: Standards	Light *cf*	Re-rolled	TRACK SUPPLIES: Angle Bars	Std Spikes	Tie Plates*g*	Track Bolts *d*
Birmingham Area..	$3.25	$3.35	$6.75	....	$64.00	$71.00	Not	$4.25	$5.35	$4.05	. ..
Chicago Area.....	3.25	3.35	6.75	$4.05	64.00	71.00	avail-	4.25	5.35	4.05	..
Pittsburgh Area... .	3.25	3.35	6.75	4.05	64.00	71.00	able	4.25	5.35	4.05	....
Buffalo Area.....	3.30	3.35	6.75	4.05	64.00	71.00	...	4.25	5.35	4.05	$8.50
Cleveland.....	..	...	6.75	....	.....	.....	....	....	....	...	8.50
Youngstown Area....	....	3.35	....	....	.....	.....	....	....	5.35	....	....
Geneva.....	3.25	....	....	...	.....	.....	...	.. ..	....	....	....
Los Angeles..... ...	...	4.05	....	....	.....	.....	....	....	5.35	....	....
Pueblo.....	3.25	3.35	....	....	64.00	71.00	....	4.25	5.35	4.05	8.50

a Fabricated: To consumers: $4.25; except $5.00 Seattle, Wash. *b* Rail steel price $3.85; Williamsport, Pa. *c* Rail steel $102 per ton Williamsport, Pa. *d* Treated. Untreated $8.25. $85.00 Minnequa, Colo. *e* Except $66.00 Minnequa, Colo. *f* Except $85.00 Minnequa, Colo. *g* Except $4.20 Pittsburg, Calif.; $4.50 Seattle, Wash.

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb base price	REINFORCING BARS*a* Per 100 lb., base price *u*: 5 tons to carload lot *b* New billet	Rail steel	Add for switch	$/cwt for Del.	EXPANDED METAL LATH*c* Per 100 sq. yd., carload lots: Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING*d* Per 100 sq. ft., carload lots: 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta..... ..	$4.75	$5.225*k*	$5.225*k*	$.025	$.10	$31.50	$31.50			
Baltimore.....	5.51	4.47*l*	....	....	.10	40.00	43.00			
Birmingham...	5.08	5.08	5.50	.05	.15	43.00*p*	45.50*p*			
Boston..... ..	5.62*k*	5.46*k*	5.46*ke*	....	.10/.15	31.00	33.00	A.P.M.* Joliet, Illinois, Donora, Penn., $2.36	A.P.M.* Joliet, Illinois, Donora, Penn., $1.63	A.P.M.* Joliet, Illinois, Donora, Penn., $2.47
Chicago.....	4.95–5.10	4.30/4.65*ff*	4.30/4.65*ff*	.0625	....	31.00‡	33.00‡	F.o.b. Mill: Monessen, Penn.; $2.36	F.o.b. Mill: Monessen, Penn.; $1.64	F.o.b. Mill: Monessen, Penn.; $2.48
Cincinnati.....	5.44‡*r*	5.44*r*	....	....	....	31.00*zee*	33.00–*zee*			
Cleveland.....	5.00*hh*	4.37*s*	....	....	.10	34.50	36.50			
Dallas.....	6.25	5.00	5.00	....	....	43.50	46.00			
Denver.....	6.45	6.65*e*	....	....	....	47.00*s*	54.50*qs*			
Detroit.....	5.28	....	....	....	.10	30.00*x*	37.00*q*			
Kansas City...	5.50	4.80*kl*	....	....	....	37.00	39.00			
Los Angeles....	5.75*f*	5.35*bb*	....	....	.15	37.00*f*	41.00*kk*			
Minneapolis....	5.29	5.83*ll*	5.83*ll*	....	.15	34.50	36.50			
Montreal.....	5.25*i*	5.15*i*	5.15*i*	....	....	44.10*h*	46.80*h*			
New Orleans....	....	5.00*ok*	...	.05	.10	32.00	32.00			
New York.....	5.13*r*	5.50	5.35	....	.15/.20	33.00*st*	35.00*st*			
Philadelphia....	5.25	5.55	....	....	....	34.50‡	36.50‡			
Pittsburgh.....	4.30/4.40	4.30/4.40	4.30/4.40	.05	.10	32.50	34.50			
St. Louis.....	5.42*k*	4.77*e*	4.77*e*	....	....	42.00*aa*	48.00*aa*			
San Francisco..	5.90*vi*	5.65	....	....	....	36.50	38.50			
Seattle.....	3.90*e*	5.25*el*	....	....	....	52.00*mm*	42.00*smmx*			

*Atl Producing Mill

‡ Delivered. *a* Mill prices. *b* 1-5 tons, add 35c. Less than 1 ton, add 50c. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivery in free delivery zone. *g* High scrap steel prices cut former 15c. differences between new billet and rail steel. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq. yd. *n* 5 to 15 tons base. *p* Del. of 5000 sq. yd. or less. *q* Std. ribbed. 4 lb., per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra—1 in., 1¼ in., 1½ in. 10¢, ¾ in., ⅞ in 15¢, ½ in. 20¢, ⅝ in. 35¢, ¾ in. 55¢, ⅞ in. $1.30. *v* Under 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *bb* Includes 55¢ extra for ¾ in. size. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales tax. *hh* Delivered price is $5.00. *ii* Rolled at Geneva mill. Shapes rolled at Fontana, $6.90. *kk* 1" ribbed. *ll* 5 to 8 tons. *mm* 2% off for cash.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. *a*	VITRIFIED SEWER PIPE Per foot. Delivered ASTM C13–44T: std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4–24 Per 1,000 ft., carload lots, f.o.b.: 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTM C 14–41: 12 in.	24 in.
Atlanta..... ..	$89.50	$0.43	$0.67	$3.39	$7.00	$114.00	$140.00	$0.45	$2.00
Baltimore.....	93.86	.52	.975	4.21	9.34	178.20	228.00	.80	2.25
Birmingham.....	82.50	.40	.72	2.84	....	210.00‡	375.00‡	.90	2.50
Boston.....	97.46	.413*usx*	.8235*usx*	3.60*usy*	10.00*usy*	173.40	267.60	1.45‡*mq*	3.60‡*mq*
Chicago.....	96.49	.51	1.00	4.25	13.25	150.00‡	270.00‡	.70	2.35
Cincinnati.....	94.90	.427	.8505	3.37	10.25	220.00‡	340.00‡	.60	2.25‡
Cleveland.....	97.13	.336*x*	.648*x*	2.88*x*	8.405*x*	147.50	231.00	.65	2.50
Dallas.....	99.28	.365	.657	2.63	6.25	.....	.....	.49	1.60
Denver.....	104.36	.41*dd*	.71*dd*	2.98*dd*	...	.....	.....	.74*dd*	2.50*dd*
Detroit.....	92.13	.55	1.06	4.18	12.09	200.00‡*m*	310.00‡*m*	.65	2.50
Kansas City.....	98.41	.418*m*	.76*m*	3.00	....	215.00*m*	375.00*m*	.60*l*	2.00*l*
Los Angeles.....	111.06	.426	.927	4.532	11.298	193.00‡	324.00‡	.72	....
Minneapolis.....	100.67	.62*mo*	1.12*mo*	4.35*mo*	.....	.....	.....	1.29*h*	3.67*h*
Montreal.....	100.00	.77*s*	1.35*s*	4.47*s*	8.50*es*	.60*p*	.48*p*	75.00*jkaa*	240.00*jkhaa*
New Orleans.....	92.68	.448	.81	4.36	8.79*	231.00*bb*	405.00*bb*	.65	2.29
New York.....	92.80/97.50	.62	1.14	4.45	12.30	.....	.....	1.00	2.50
Philadelphia.....	90.47	.54	.99	4.08	10.28	235.00‡	300.00‡	1.25*h*	3.20*h*
Pittsburgh.....	97.76	.364*m*	.702*m*	2.70*m*	6.625*m*	134.20	197.40	1.05*h*	2.50*q*
St. Louis.....	94.27	.48	.92	3.80	9.00	.....	.....	1.10*il*	2.20*hl*
San Francisco....	111.06	.50*d*	.99*d*	4.32*d*	10.80*d*	188.00*dl*	313.00*dl*	.69	2.85
Seattle.....	112.95	.51*b*	.91*b*	....	....	150.00*e*	.....	.80*ee*	2.40

*WROUGHT STEEL PIPE (Full standard weight)

Mill	3½ to 6 in., Lap Weld† Black %	Galv. %	2½ & 3 in., Butt Weld† Black %	Galv. %
Lorain, Ohio.....	45.5*a*	30.0*a*	35.5	35.5
Aliquippa, Pa.....	44.5	29.0	35.5	35.5
Sparrows Pt., Md....	42.5	27.0	34.5	35.5
Benwood, W. Va.....	45.5*a*	30.0*a*	50.5	50.5
Youngstown, O.....	44.5	29.0	50.5	50.5
Indiana Harbor, Ind.	42.5	27.0	49.5	50.5
Sharon, Pa.....	45.5*a*	30.0*a*	50.5	50.5
Wheatland, Pa.....	44.5	29.0	50.5	50.5
Etna, Pa.....	42.5	27.0	49.5	50.5
Fontana, Calif.....	33.5*ab*	24.5*ab*	39.5*ab*	24.5*ab*

a 3½ to 4 in. *b* Continuous weld

‡ Delivered. † F.o.b. *a* B. & S. class B and heavier, CL. Burlington, N. J. (base) $87.50. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $5 per ton additional, 30 in. and larger, usually $1 per ton less. *b* Extra strength ASTM C 200–44T. *c* 4-in., $90. *d* 88361-A. *e* 30 in. *g* Culvert pipe. Reinforced, ASTM C76–41. *h* Reinforced. ASTM C75–41. *i* Reinforced. ASTM C76–37. *j* Centrispun. *k* Per 100 ft. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 ton loads, price per ft. *t* Within switching limits. *u* ASTM C13–40. *v* F.o.b. city. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60–1941 specifications used. *aa* No standard specifications in Can. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL, delivered, f.o.b. truck. *ee* 1% off for cash. * Not stocked, only made to order.

*WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11¼¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap weld:* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

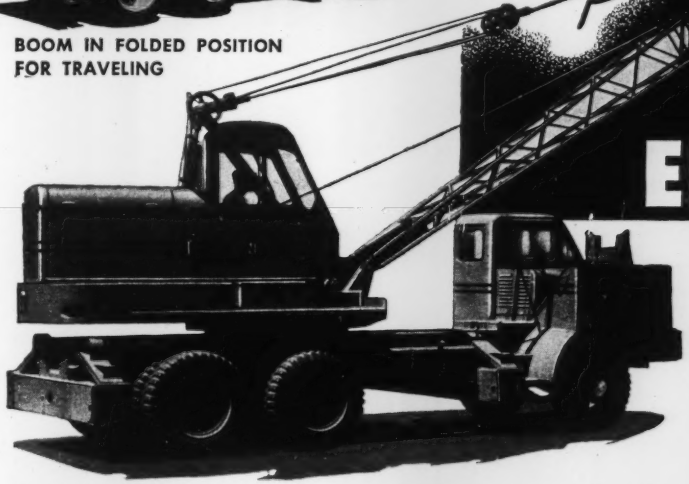
WROUGHT IRON PIPE: List prices per ft. same as wrought steel pipe. Discount for Pittsburgh base. *Butt weld* — 1 in. and 1¼ in. black, +4.5, galv. +27.0; 1½ in. black, 1.5, galv. +23.5; 2 in. black 2, galv. +23.0. *Lap weld* — 2½ in. to 3½ in. black + 5, galv. +26.5; 4½ in. to 8 in. black + 2, galv. +22.0. Freight rates to destination to be added to name delivered price.

(Continued on page 62)

UNIT 1014

10 TON TRUCK CRANE WITH DUAL POWER

BOOM IN FOLDED POSITION FOR TRAVELING

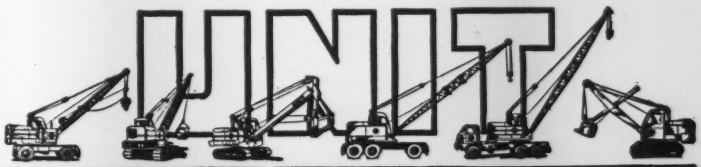


- One Engine for Speed and Mobility
- Another Engine for Lifting or Digging
- Gas or Diesel Power
- Road Speed: 32 M.P.H.
- Capacity: 10 Tons

One look at the UNIT 1014 will convince you that here is Truck Crane design at its best. Perfectly balanced, it has modern, adjustable hook-roller construction. Power flows from the truck engine in a direct straight-line drive to the tandem rear axles, both of which drive. A separate engine powers the upper structure, and may be either gas or diesel. Double, full-width outriggers provide added stability. This streamlined unit has 5 speeds forward and one reverse, with an auxiliary transmission offering 10 speeds forward and 2 speeds reverse. A road speed of up to 32 M.P.H. makes "going from job to job in a hurry" a simple matter. Large diameter, wide-faced air brakes are used on all 4 rear wheels. A hand operated, shoe type parking brake is provided on the propeller shaft. A short turning radius increases its value in close-quarter operations, and all dimensions meet highway requirements.

UNIT CRANE & SHOVEL CORP.
6315 W. BURNHAM STREET, MILWAUKEE 14, WISCONSIN, U.S.A.

● Other UNIT Models are available in ½ and ¾ Yd. Excavators and Cranes up to 15 Tons . . . Crawler or Mobile Types . . . Fully convertible to ALL attachments.



SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHOES • MAGNETS

A 5523-1P-C

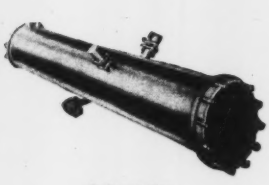
READY!
THE ALL NEW--
STURTEVANT
AIR HANDLING UNIT
--STABLE
PERFORMANCE,
NEW FLEXIBILITY

Refrigeration Compressors

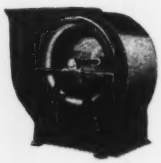
Axial Flow Fans

Heating and Cooling Coils

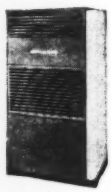
Everything that puts air to work for Every application



Refrigeration Condensers



Centrifugal Fans



Unit Air Conditioners

J-80154

Cut-away of Type AH—horizontal arrangement. Also available in vertical arrangement —Type AV.

1. ALL TYPES OF COILS AVAILABLE
—for well water, chilled water or Freon, as well as hot water or steam—a complete line.

2. STABLE, QUIET FAN OPERATION
—with a revolutionary fan design. Non-overloading horsepower, steep stable pressure characteristic, certified performance.

3. MINIMUM INTERNAL RESISTANCE
—static pressure requirements kept low. Ample filter area, plate-type fins, eddy-free flow.

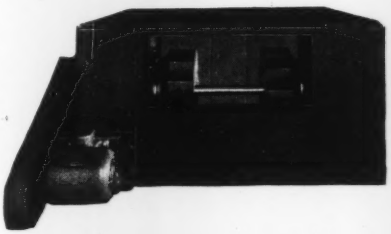
4. RUGGED, INSULATED CABINET
Sectionalized casing with welded, gussetted structural angle frames and insulated panels.

5. EXCELLENT MAINTENANCE ACCESSIBILITY
—wide, gasketed, hinged doors for easy filter removal. Fan and coil section panels removable.

6. FLEXIBLE DESIGN
—sectional construction permits wide variety of assembly arrangements and uses.

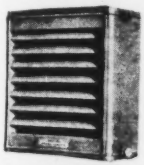
7. EASY TO ASSEMBLE AND INSTALL
—shipped in sections for ease of handling. Single outlet simplifies duct work.

8. UNDIVIDED RESPONSIBILITY
—fans, coils, motor . . . every *major part a product of* one *manufacturer. You can't get this vital, plus-value anywhere else!*



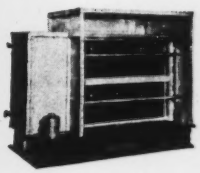
This announcement is important to you. For the complete story of these new units, including their selection and application, call your nearest Sturtevant office, or write Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Mass.

Westinghouse
Sturtevant Division



Unit Heaters

PRECIPITRON® (Electronic Air Cleaner)



Surface Dehumidifiers

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box.

(Prices in Bold Face)

All Fir boards, dimension, planks No. 2, Fir small timbers and timbers is No. 1. Lengths up to 20 ft.

(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	12x12 Rgh	PLYWOOD Rail freight increment* (See note for base price) ⅜"	¼"
Atlanta†	**$70.00**	**$71.00**	**$60.00**	**$62.00**	**$65.00**	**$68.00**	**$70.00**	.....	.....	.....	.....	**$22.32**	**$27.24**
Baltimore	**63.00**	**68.00**	**60.00**	**60.00**	**60.00**	**65.00**	**80.00**	.....	.....	120.00	120.00	22.86	27.90
	76.00	*76.00*	*76.00*	*76.00*	*76.00*	*76.00*	*84.50*	*72.00*	*72.00*	.....	.....	.....	.....
Birmingham	**83.00**	**87.50**	**73.00**	**75.00**	**78.00**	**82.50**	**95.00**	.....	.....	130.00	125.00	21.78	26.58
	80.00	*80.00*	*77.00*	*77.00*	*77.00*	*77.00*	*95.00*	*95.00*	*95.00*	.....	.....	.....	.....
Boston	87.00	77.82	82.00	82.00	82.00	87.00	.....	.....	.....	115.00	115.00	22.86	27.90
	91.93	*91.93*	*93.95*	*81.83*	*81.83*	*101.103*	*101.103*	*101.103*	*101.103*	.....	.....	.....	.....
Chicago‡	**80.83**	**82.84**	**72.74**	**81.83**	**84.85**	**85.87**	**90.00**	.....	.....	114.116	114.116	18.72	22.80
‡	*81.83*	*85.86*	*83.84*	*83.84*	*85.86*	*85.87*	*87.00*	*91.92*	*91.92*	.....	.....	.....	.....
Cincinnati	**82.50**	**83.00**	**83.00**	**83.00**	**83.00**	**98.00**	**123.00**	.....	.....	118.00	128.00	21.78	26.58
	110.00	*116.00*	*95.00*	*105.00*	*110.00*	*115.00*	*123.00*	*125.00*	*125.00*	.....	.....	.....	.....
Cleveland	**80.00**	**82.00**	**65.00**	**75.00**	**78.00**	**79.00**	*90.00*	*90.00*	*90.00*	.....	.....	22.20	27.12
Dallas†	**58.00**	**58.00**	**58.00**	**54.00**	**56.00**	**58.00**	**85.00**	.....	.....	83.00	90.00	18.72	22.80
Denver	*Not in stock*		*86.00*	*85.00*	*85.00*	*85.00*	*89.00*	*114.00*	*118.00*	...	.....	13.92	16.98
Detroit	**80.00**	**82.00**	**68.50**	**79.00**	**79.00**	**80.00**	.....	.....	.....	.....	.....	**21.78**	**26.58**
	82.00	*82.00*	*82.00*	*82.00*	*81.50*	*81.00*	.....	.....	.....	.....	.....	.....	.....
Kansas City	**100.00**	**100.00**	**90.00**	**95.00**	**95.00**	**100.00**	**110.00**	.....	.....	.....	.....	**16.56**	**20.16**
#	*85.00*	*85.50*	*90.00*	*95.00*	*90.00*	*90.00*	*100.00*	*125.00*	*125.00*	.....	.....	.....	.....
Los Angeles*	*71.00*	*71.00*	*71.00*	*71.00*	*71.00*	*71.00*	*78.00*	*83.00*	*78.00*	.....	.....	13.38*ab*	16.26*ab*
Minneapolis‡	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*120.00*	*120.00*	*120.00*	.....	.....	16.56	20.16
Montreal	*ab* **73.00**	**76.00**	**73.00**	**75.00**	**76.00**	**85.00**	.....	.....	...	.....	.....	.....	.....
	155.00	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	.....	*155.00*	.....	.....	.....	.....	.....
New Orleans	**66.00**	**70.00**	**70.00**	**75.00**	**75.00**	**70.00**	*85.00*	.....	.....	100.00	105.00	18.72	22.80
‡	*68.70*	*68.70*	*71.00*	*75.00*	*72.50*	*72.50*	*67.00*	*67.00*	*100.00*	.....	.....	.....	.....
New York	**90/97.50**	**92.50/100**	**Range from $80.00 to $90.00**				**95/100**	.....	.....	175/200*f*	175/200*f*	**22.86**	**27.90**
‡	.....	.....	*Range from $99.00 to $97.50*				*93.105*	*102.50*	*115*	*102.50/115*	.....	.....	.....
Philadelphia			**Range from $88.00 to $97.00**				**88.97**	.....	.....	180.00	180.00	**22.86**	**27.90**
			Range from $106.00 to $115.00				105.115	*105.115*	*105.115*	.....	.....	.....	.....
Pittsburgh†	**75/80**	**75/80**	**75.80**	**75/80**	**75/80**	**75.80**	**100.00**	.....	.....	.....	.....	**22.56**	**27.48**
†	*90.100*	*90.100*	*90.100*	*100.110*	*100.110*	*100.110*	*120.130*	*120.00*	*120.00*	.....	.....	.....	.....
St. Louis‡c	**85.00**	**87.25**	**74.25***d*	**84.25***d*	**91.75***e*	**94.00***e*	.....	.....	.....	104.75	*137.50*	18.72	22.80
‡c	.....	.....	*99.50e*	*101.25e*	*102.25e*	*102.25e*	*106.50*	*130.00*	*137.50e*	.....	.....	.....	.....
San Francisco	*68.00*	*68.00*	*68.00*	*66.00*	*66.00*	*65.00*	*65.00*	*65.00*	*65.00*	.....	.....	10.08*a*	12.30*a*
Seattle†	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	.....	.....	.....	.....

† F.o.b. mill. ‡ Delivered. ‖ Retail-LCL. * Yard prices.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8-12 ft. lengths. *e* 8-16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common.

PLYWOOD: Special concrete form grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅜", $135.00; on ¼", $160.00. For other centers add rail freight increment from table on proper size.* Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Freight rate increase of 6¢ per cwt., not included in these figures

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Jan. 16, 1946 Single or Double Thickness A quality	B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	76%	76%	$0.2025
Baltimore	66-10%	67-10%	.2025
Birmingham	67%	67%	.1575
Boston	60%*i*	60%*i*	.2025
Chicago	67%	67%	.2025
Cincinnati	66-10%*e*	66-10%*e*	.2025
Cleveland	66-10-10-10%	66-10-10-10%	.2425
Dallas	65%	65%	.215
Denver	67%	67%	.2075
Detroit	66-10-10%	66-10-10%	.2025
Kansas City	65%*e*	65%*e*	.2075
Los Angeles	58%	63%*f*	.21
Minneapolis	64%	64%	.2075
Montreal	40-5%*bc*	40-10-5%*bc*	18.90*h*
New Orleans	68%	68%	.2125
New York	71%	72%	32*g*
Philadelphia	69%	70%	.2025
Pittsburgh	70%	70%	.175
St. Louis	70-10%	70-10%	.2075
San Francisco	66%	73%	.2075
Seattle	54%	55%	.21

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass: *a* Jobbers' list price per box, 14 x 20, ss, $20.75 for A quality, $18.00 for B quality; 14 x 20, ds, $30.75 for A quality, $26.00 for B quality. *b* Discount from list, Sept. 1939; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *e* Discount from list of Aug. 15, 1938. *f* ss; ds—62%. *i* Double thickness 65%.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $20.65.

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C.I.L. 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.155	$0.1825	$0.2025
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.16 - .1675	.1875-.20	.2075-.22
Rocky Mtn. States	.16 - .1725	.1875-.20	.2075-.225
Pacific N. W. States	.1575-.17	.19 - .2025	.21 - .2225
Pacific S. W. States	.155 - .1625	.1875-.195	.2075-.2175

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.50	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	.79
13-in.—3-ft. from butt	5-in.	91 to 100-ft.	....	.80
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50	.87
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.54	.81
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.67	.82
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	...	.83
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	....	.87

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak‡	...	.....	....	.....
	Pine‡	...	.....	....	.....
New York	S. L. Sap Pine	$1.65	$2.85	$2.00	$3.30
	Mixed Oak	1.80	3.05	2.50	3.60
Birmingham	Hardwood	1.00	1.60*a*	....	2.25*a*
Chicago	Red Oak	....	2.50/2.60*a*	....	3.52/3.45*a*
Los Angeles	Douglas Fir	....	3.00*a*	....	...
	Redwood	1.86	....	....	....
Philadelphia	Red Oak	2.33	3.13*a*	3.10	4.25*a*
St. Louis	White Oak	2.24	...	2.99	....
	Red Oak	2.14	2.83*a*	2.89	3.82*a*
	Sap Pine or Cypress	2.91*a*	....	3.85	....
San Francisco	Douglas Fir	1.28*e*	2.24*f*	1.70*bf*	3.05*caf*
Montreal	Birch or Maple	....*h*	...*h*	...*h*	....*h*

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. ‡ Not available

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$4.25
Chlorine cylinders, liquid, per lb. f.o.b. works	.07-.12
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton	22.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	1.80
Soda ash, 58%, in paper bags, per 100 lb. dense	1.50
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.50
Sulphate of copper, in bags, 99% per 100 lb f.o.b. works	7.00

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED			BRICK		LIME		
	Per M. lots of 2,000 pieces or over.			Per M. lots of 2,000 pieces or over.			Per M. in quantity		Per ton, In paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	.....	.....	.....	.....	.....	.....	$25.00	$25.00	$19.00	$17.50	$17.50
Baltimore	$170.00	$180.00	$320.00	$375.00	.....	.....	32.00*k*	35.00*k*	30.00	20.00	.....
Birmingham	97.50	104.00	195.00	231.00	.....	.....	20.00*ff*	22.50*gg*	24.67	18.10	.....
Boston	145.00†	149.00†	280.00†	317.00†	.....	.....	32.00*i*	35.00*i*	30.80†	26.40†	.....
Chicago	115.00	122.50	230.00	.....	.....	.....	21.00	23.00	28.50	19.50	.....
Cincinnati	168.00*j*	178.00*j*	238.00*jdd*	328.00*f*	.....	.....	32.50*j*	38.00*y*	22.25*j*	20.50*j*	.....
Cleveland	118.00*cc*	126.00*cc*	236.00*cc*	.....	.....	.....	28.50	28.50	24.00	22.00	27.50*ss*
Dallas	.....	110.00	.....	.....	.....	.....	18.75	33.25	28.00	22.00	.....
Denver	.....	.....	.....	.....	.....	.....	32.00	32.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	117.08	124.88	234.15	234.15	$290.68	$332.20	30.00*cc*	31.50*cc*	30.00	28.00	.....
Kansas City	115.50	125.00	... ..	.....	.....	.....	22.00*o*	25.00*o*	36.00*p*	30.00*p*	30.00*p*
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	20.00§	.....	.....	36.00	32.00
Minneapolis	158.00*p*	176.00*p*	330.00*p*	176.00*wp*	.....	.....	30.00*xp*	34.00	35.00*bbe*	26.00*bbe*	35.00*bbde*
Montreal	110.00*aq*	120.00*aq*	225.00*aq*	.....	.....	.....	25.50	35.00	22.40*u*	14.00*ub*	.....
New Orleans	160.00	160.00	300.00	.....	.....	.....	29.00	.....	38.00	26.00	37.50
New York	118.20*h*	126.00*h*	173.30*eh*	189.00*hn*	.....	.....	33.00	.....	34.40	26.80	.....
Philadelphia	126.30	134.80	252 60	302 74	361.35	455.74	27.00	30.00	31.00	19.50	24.50
Pittsburgh	98.00	105.80	181.85	207.30	265.35	303.60	26.00	38.00*y*	20.45	16.85	2.97*m*
St. Louis	120.00	138.50	252 50	252.50	339.50	.....	32.50*al*	30.50*al*	.80*saap*	.60*saap*	1.00*aaspee*
San Francisco	132.00*a*	148.50*a*	198.00*dda*	148.50*ta*	.....	.....	32.00	.....	24.95	24.95	2.49*m*
Seattle	150.00*ee*	160.00*ee*	... ..	160.00*eeu*	.....	.....	32.00*s*	39.00*s*	32.00*shh*	32.00*shh*	3.60*mhh*

† F.o.b. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *f* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *i* F.o.b. warehouse only. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 12. Speed tile. *o* F.o.b. Buffalo. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. plant.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD	WHITE LEAD	READY-MIXED PAINT			ROOFING SUPPLIES Carload lots f.o.b. factory				
	Per 100 lb. in 600-lb. (Approx.) bbl.	Per 100 lb. in 100 lb cases	Per gal., drums			Rolls, slate surfaced, 85-90 lb per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
	Dry *a*	In oil *w*	Graphite *b*	Aluminum *c*	Ferric Oxide *d*					
Atlanta	$18.75	$29.325	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	*$2.06‡	$1.00‡	$36.00‡
Baltimore	18.50	28.95	2.10	4.27	2.80	2.96	3.94*	3.94*	.55	36.00
Birmingham	18.75	29.325	3.90	3.40	....	2.80	2.75	2.75	.48	40.50*ss*
Boston	18.50	28.95	....	....	.. ..	2.68	....	2.67‡*g*	.36	34.00
Chicago	18.50	28.95	....	....	.. ..	2.34‡*u*	2.54‡*o*	2.54‡*o*	34.00‡*bb*	37.00‡
Cincinnati	18.50	28.95	....	3.03	..	2.31‡	2.41‡*o*	3.25‡*o*	.35*y*‡	42.00‡
Cleveland	18.50	28.95	2.50	2.75*s*	2.35	2.32	2.41*o*	2.41*o*	.30*y*	35.00
Dallas	18.75	29.70	....	4.05	....	3.50*q*	3.75*q*	4.35*q*	.36	46.00
Denver	19.00	29.45	2.63	4.38	2.48	3.20*o*	2.20*o*	2.20*o*	.41*ff*	40.00
Detroit	18.50	28.95	2.50/2.60	3.35	2.50/2.60	2.32	2.41	2.41	....	35.00
Kansas City	18.50	29.075	....	....	..	1.65*e*	....	2.50	.35*y*	.....
Los Angeles	18.50	29.20	2.80	3.75	3.80	2.41	1.91*e*	*l*	.45	*l*
Minneapolis	18.50	29.075	....	....	....	2.32*idd*	2.41*hidd*	2.41*hidd*	.336*idd*	35.00*rdd*
Montreal	....	25.65	3.25*t*	4.20*t*	3.62*t*	3.25*t*	3.00*tf*	3.00*tf*	.85*t*	2.60*kt*
New York	18.50	28.95	3.45*y*	....	3.45*y*	2.32	2.41*o*	2.41*o*	.34*s*	35.00
Philadelphia	18.50	28.95	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	18.50	28.95	2.00	2.00	1.90	3.00	3.00*o*	3.00*o*	.37	38.00
St. Louis	18.50	28.95	....	....	....	2.20	2 29*h*	2.29*h*	.42	35.00
San Francisco	18.50	29.20	1.80	2.75*n*	1.35	2.27	3 30*aa*	....	.38*q*	.....
Seattle	18.50	29.45	2.67*m*	2.67*m*	....	3.23*mqee*	3.24*hmee*	....	.49*mee*	48.25*jmee*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *h* Per oil. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* May, 1941 price. *o* Per 60-lb. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* ASTM Spec. D266-41. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *z* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal. drums. *Previous price was for 65 lb. roll.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const
Atlanta	$2.50	$1 85	$2.00	$2.00	$2.00	$2.00	$2.00	$0.85	$0 95
Baltimore	3.00	2.20*d*	2.55*e*	2.40/2.60	2 25	2 25	2 25	1.25	1.25
Birmingham	2 50	1 95	2 20	1 875	2 20	2 25	2.25	1.00	1.10
Boston	2.625	2 25	2.55	2 60	2.70	2 50	2.45	1 65	1.65
Chicago	2.55	2.45	2.50	2.45	2.55	2.525	2.45	1 80	1.80
Cincinnati	2.575	2 25	2.425	1.60/2.60	2.425	2.45	2.40	1.535	1.46
Cleveland	2.575	2.525*f*	2.575	2.525	2 525	2.525	2.575	1 85	1 725
Dallas	2.50†	2.125	2 25	2 25	2.50†	2 375	2.375	1.075	1.275
Denver	3 00	2.10	2.10	2 25	2.50	2 41	2.40	1.40	1 35
Detroit	2 325	2.325	2.575	2.575	2.625	2.60	2.50	1.675	1.675
Kansas City	2.60	2 15	2 30	2.375	2 75	2 30	2 375	1.575	1 575
Los Angeles	2.625	2 12	2.30	2.07	3.125*a*	2.50	2.50	1.57	1.57
Minneapolis	2.40	2.12	2.725	2 07	2.50	2 35	2.32	1.52	1.52
New Orleans	2.50	1 875	2.25	2 125	2.00	2 30	2.25	1.025	1.025
New York	3.20*b*	2.75*b*	3.00	3.00	3.20*a*	3.00*b*	2.75*b*	1.70	1.70
Philadelphia	3.00	2.34/2.40	2.65	2.50	3.00	2.75/3.00	2.75	1.375	1.675
Pittsburgh	3.00	2 50	2.50	2.65	2.625	2 575	2.50	1.50	1.50
St. Louis	2.833*c*	2.45	2.50	2.55	2 50	2.50	2.50	1.60	1.50/1.75
San Francisco	2.8125	2.16	2.50	2.19	2.8125	2 50	2.50	1.55	1.55
Seattle	3 00	2 195	2.395	2 33	2.495	2.395	2.50	1.795	1.83
Montreal*	1.40	1.25	1.30	1.20	1.40	1.35	1.15	.90	.80

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund eff. 7/49. *d* 5¢/hr. reduction pending a new 2-yr. contract. *e* 10¢ reduction eff. until May 1, 1950, when an increase of 10¢/hr. goes into effect. * Cost of living bonus now included in basic wage. *f* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Aug. '49	Sept. '49
Common Wages—Building			
(8 hr. day)	av. per hr.	.57	.57
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.75	.75
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	1.25	1.25
Bricklayers (8 hr. day)	av. per hr.	1.25	1.25
Struct. Iron Workers (8 hr. day)	av. per hr.	1.50	1.50
Struct. Steel Shapes			
3"-15" x 12 meters	per ton	1,050.00	1,050.00
Reinf. Steel, Corr. Rods			
⅜" x 12 meters	per ton	1,150.00	1,150.00
½" x 12 meters	per ton	1,130.00	1,130.00
⅝" x 12 meters	per ton	1,120.00	1,120.00
¾" x 12 meters	per ton	1,110.00	1,110.00
⅞" x 12 meters	per ton	1,110.00	1,110.00
1" x 12 meters	per ton	1,110.00	1,110.00
Grave. truck load of 3½ cu. meters			
Blue Gravel	per tr. load	32.00	30.00
Rose Gravel	per tr. load	30.00	30.00
Cement, Std. Port. (Tolteca)	per ton	115.00	115.00
Lumber			
Mex. Sacred Fir (Oyamel)	per M ft.	375.00	375.00
1st Class Pine	per M ft.	700.00	700.00
2nd Class Pine	per M ft.	400.00	400.00

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers) 2.467. **ENR Common Average:** 1.478.

MUDDLING in High Places

It is time for men in Washington and London to stop toying with the problem of international trade. We of the democratic West are at a turning point in our economic affairs. A false step by either the United States or Britain could lead quickly to disintegration of trading between the people of the world as we have known it for the past hundred years. Recent meetings of diplomats in London and Washington have not lifted us out of this danger.

By two simple tests you and I can measure the sincerity of the men in Washington and in London who are trying to solve what they call "the dollar crisis."

One test applies to the British: Is Britain making an honest effort to re-establish itself as a real competitor in world markets?

The other test applies to us in the United States: Are we willing to see Britain re-emerge as a strong competitor in world markets—even in our own home market—and to help her do so?

Today, even though both countries have faced the devaluation test, the answer to these questions probably is no.

I

The situation we face is, in fact, unprecedented. In every important industrial country of the non-Communist world, except Germany and Japan, production is above prewar volume, thanks largely to the Marshall Plan. Yet trade between nations is shackled as it has never been since the 18th century. And the shackles grow day by day. What is worse, two distinct trading areas—the dollar area and the sterling area—have grown up in the non-Communist world, and the gulf between them grows wider.

What kind of leadership have the United States and Britain had in the face of this crisis? President Truman late in August wisely checked the trans-Atlantic bickering over the dollar crisis. *But Mr. Truman showed no awareness of the basic question that the American people must soon decide: Is the United States able and willing to generate trade between nations, as Britain did in the 19th century?*

What have British leaders offered us? Foreign Secretary Bevin and Chancellor Cripps called their September visit to Washington "one of the most important missions in history." *But they did not tell the British people, and perhaps do not admit themselves, that their Labor government must change its internal and external policies if Britain is ever to earn its living in a competitive world.*

Admittedly, the problem Britain has faced since 1945 is a colossal one. But, in the face of its grave difficulties, what has Britain done? The working day was shortened. Welfare economics have run riot. High taxes have sapped incentives. Labor and capital have clung to their prewar psychology of cartels and featherbedding. Government controls and government trading have hamstrung private initiative. Nationalization schemes have injected politics into the struggle for industrial recovery.

Thus the policies of the Labor government have made Britain's adjustment to its new position in the world immensely more difficult. But Americans who attribute the danger of an international breakdown to British socialism greatly oversimplify the problem. Virtually every country in the world, socialist or not, faces the same dollar crisis that Britain faces.

We Americans must recognize that our economic strength unbalances world trade as does Britain's weakness. World War II increased America's superior power to produce goods. It also made the United States more self-sufficient. Thus, while the world demand for American goods has risen, our demand for foreign goods, except for basic raw materials, has not increased. Today we sell more to every major area of the world than we buy from it—and yet we wonder why there is a dollar crisis.

It is time for us to recognize that there are two fundamentally conflicting pressures at work in the United States. One is our desire for a big surplus of exports over imports. The other is our desire for a system of free-wheeling trade around the world. We can not have both unless we as taxpayers wish to subsidize our exports. Which do we want?

Curtis E. Calder, chairman of the International Relations Committee of the National Association of Manufacturers, says, "The battle of the foreign trade gap is essentially that of reconciling our urge to export our surpluses with a reluctance to accept imports in payment for them . . . The dilemma is an uncomfortable one to face."

II

Here, then, are the basic questions that confront men in Washington and London. Does Britain really want expanding world trade or a high-cost welfare state? Does the United States really want expanding world trade or a huge surplus of exports? So far politicians in Washington and especially in London have ducked these issues because they are political dynamite.

If the people of Britain decide they want to regain their position as a competitive trader in expanding world markets, here are specific objectives that men in London should set for themselves:

1. Lower government costs. The British Treasury has asked for cuts of 5% in 1950. But a cut nearer 15% will be necessary, even if that means fewer government subsidies and health services. Enterprise will never revive nor costs come down while taxes take 40% of the British national income, including roughly 60% of business profits.

2. Fewer government controls. Only by removing controls and allocations (except on a few necessities) can Britain begin to return to prices fixed by competition rather than by government fiat.

3. Stronger anti-monopoly legislation for both business and labor. Britain needs a concerted drive against all forms of restrictive, high-cost practices. This drive should put teeth in the anti-monopoly act and supplement it with legislation to end restrictions imposed by trade unions.

4. Less restrictive trading practices. Britain should retreat gradually from its international barter between governments if competition is ever to have free play in international trade.

Meanwhile, if we of the United States sincerely want multilateral world trade, men in Washington must face up to four problems and hammer out workable solutions:

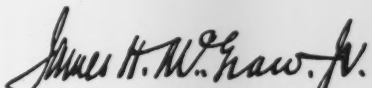
1. Use of the International Monetary Fund to back a devalued pound. In time the Fund, in which we have the controlling voice, might be used to promote convertibility of pounds into dollars.

2. Help for Britain in meeting war-created external debts. This might mean support for London in getting a reduction of the war debts Britain owes India, Pakistan and Egypt, for example. To achieve such a debt reduction for Britain we might have to underwrite a part of a Southeast Asia recovery program.

3. Encouragement of American investments abroad. Such investments should be directed primarily into enterprises which will earn dollars, such as the development of new sources of raw materials, or which will raise productivity abroad.

4. Our own tariff barriers. Our attitude toward this critical issue will be the acid test of how deeply we believe in the merits of free world competition.

If we really want free, competitive trading between the people of the world, these issues must be met and resolved by leaders on both sides of the Atlantic. If we do not want to face these issues, then let us resign ourselves to a world walled off into three trading areas: the Communist bloc, the sterling area, and the dollar area. So far, Washington and London have muddled along, except in facing the devaluation problem. Clarity and courage are still needed.



President, McGraw-Hill Publishing Company, Inc.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N.Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

October 11

Mo., St. Louis—City of St. Louis, Bd. P. Service, Frank J. McDevitt, pres., 304 City Hall, 12 and Market Sts., Zone 3, cleaning, repairing lining with cement mortar, 49 in. Conduit 1, Forest Park, 13,935 lin. ft. 36 in steel watermain in Chippewa and May Sts., Broadway, Sulphur, Hampton and Tamm Aves.

October 12

N. C., Morganton—State Hospital, at office A. P. Smith, bus. mgr., State Hospital, Div. 1, 300,000 gal elevated steel water storage tank; Div. 2, tank fdn.; Div. 3, connecting watermains at Hospital and School for the Deaf; Div. 4, pumping and electrical starting equip. for raw water pumping station; Div. 5, pumping station and installing equip.; Div. 6, clearing land to be flooded and marginal strip adjacent to flooded area; Div. 7, construct compounded earth impounding reservoir dam, concrete intake tower, etc.; Div. 8, cleaning mountain supply line. Plans deposit $30. Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, Va., consult. engrs.

October 17

Mont., Billings—Earle Knight, clk. Yellowstone Co., Billings, 4,636 ft. 6 and 8 in. c. i. watermains Dist. 112, 2,560 ft. 8 in. c. i. watermains, Dist. 113, for Rural Special Imprvt. Dists. 112 and 113, $39,427. C. E. Durland, co. surv. CD 7/13/44.

Tex., Pleasant Grove (Dallas P. O.)—Dallas County Water Control & Imprvt. Dist. 3, 8122 Macon Dr., Contr. 1, water supply well and pump unit, $28,000; Contr. 2, steel water tower and surface reservoir, $56,500. Plans deposit $25 each. Koch & Fowler, 713 Great Natl. Life Bldg., Dallas, engrs. CD 9/13.

LOW BIDDERS

Mass., Boston — Commonwealth of Massachusetts, Metropolitan Dist. Comm., 20 Somerset St., Sept. 22, furnishing, laying 10,000 ft. 24 in. pipe, appurtenant structures, inc. manholes, culverts, etc., pumping station Hyde Park, Constr. 170, from Demos Bros., 1709 Page Blvd., Springfield, **$187,714.** CD 9/15.

Tex., College Station—A & M College of Texas, College Station, cancelled bids to have been opened Sept. 21, 7½ mi. 18 in. water supply line, **$340,000.** CD 9/2.

CONTRACTS AWARDED

Ia., Knoxville—City, City Hall, water supply line, to Young Woman Co., St. Joseph, Mo., **$193,148.** H. R. Green Co., 417 1 Ave. S. E. Cedar Rapids, engr. Bids 9/12. CD 8/24.

Ky., Princeton—City, City Hall, water treatment plant imprvts., to Don P. Pray, P. O. Box 483, Monett, **$111,500.** Est. $100,000. Bids 9/12. CD 8/18.

O., Cleveland — City, E. J. Crown, dir Pub. Utilities, City Hall, Nottingham Filtration Plant Div. C, 1 story, bsmnt, 266x325x64 ft. pump bldg.; machine shop and garage, to Hunkin-Conkey Constr. Co., 1740 E. 12 St., **$3,237,445***filter water pumps, to Dravo Corp., 443 Delaware Ave., Buffalo, N. Y., **$328,700****raw water pumps, to Layne-Ohio Co., 1100 W. Town St., Columbus, **$119,000.** Grand total $3,685,145. Bids 9/2. CD 9/22, under LB.

Tex., Houston—City, City Hall, 900 Brazos St., 2½ mi. rein.-con. water pipe, located to 5 water wells in northeast and northwest sects. of city, to Gifford, Hill, American, Inc., Rusk Bldg., **$118,286.** Bids 9/16. L. Fugate, city engr. CD 6/30/44.

SEWERS, WASTE DISPOSAL

BIDS ASKED

October 11

Kan., Johnson—City, E. S. Hunt, clk., City Hall, sewerage sys. imprvs., incl. Part A, sewage treatment plant, appurtenances, etc., Part B, 27,460 lin. ft. 8 in. and 10 in. vitr. clay sewers, 77 manholes, flushing manholes, etc. Plans deposit $20. Ediger Eng. Co., 252 Laura St., Wichita, engr.

N. Y., New York—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. 2, electrical work for Hunts Point Sewage Treatment Works, Plans deposit $25; Contr. 3, plumbing, Plans deposit $10; Contr. 4, heating and ventilating, Plans deposit $15; Contr. 5, pumping units, Contr. 6, engines, generators and blowers, Plans deposit $10; Contr. 1, structures and equip., Plans deposit $100. Extended date. CD 8/22 and 8/29.

N. Y., New York—President Bronx Borp, 851 Grand Concourse, Zone 51, reconstruct combined sewer, appurtenances, W. 188 St., Sedgwick and Webb Aves.

Pa., Abington—Secretary Comrs., Abington Twp., York Rd. and Horace Ave., Contr. 16, 13,100 lin. ft. 8 and 10 in. sanitary branch and intercepting sewers in Ardsley Area, Ward 9. Contr. 17, 14,900 lin. ft. 8 and 10 in. sanitary branch and intercepting sewers, North Hills Area, Ward 6; Contr. 18, 770 lin. ft. 8 in. sanitary sewers Noble Area, Ward 7. Plans deposit $10. Albright & Friel, Inc., 121 S. Broad St., Phila., Pa., consult. engr.; adv. ENR 9/29. CD 8/25.

October 17

Kan., Augusta—City, Mrs. Martha Schultz, clk., City Hall, sewerage sys., incl. Part A, sewage treatment plant, auxiliaries, appurtenances, Part B, outfall sewer, plant outfall sewer, manholes, etc. Plans deposit $20. Ediger Eng. Co., 252 Laura St., Witchita, Zone 7, engr.

October 18

Calif., Pomona—City, sanitary sewers in Butterfield Rd. **$193,104.** Fred C. Froehle, city engr. CD 8/28.

Tex., Marlin—City, Contr. 1, sanitary sewerage sys. imprvs., $50,000. Plans deposit $15. Joe J. Rady, 811 American Fidelity Bldg., Ft. Worth, engr. CD 1/4.

LOW BIDDERS

Calif., Los Angeles—City, City Hall, Sept. 14, 12,925 lin. 18- to 24-in. vitr. clay sanitary sewers in Woodman Ave., between Woodman Ave. and Valerio St. from Bosko Constr. Co., 3844 Whiteside Ave., **$184,555.** CD 8/30.

Fla., Tampa—Bd. Representatives of City of Tampa, Tampa, sewerage sys., 3 of 5 areas, from Stansfield Constr. Co., 2401 Horatio St., **$585,200*****1 area, from Higgins, Inc., Sarasota, **$241,249*****1 area, from Mariam-O'Brien, Inc., 501 22 St. S., St. Petersburg, **$94,582.** CD 8/18.

Ill., Princeton — City, Marjorie Grampp, clk., Sept. 9, City Hall, Sect. 5, sewerage sys., imprvs. to sewage plant, incl. equip., from Clinton Eng. Co., Clinton, **$189,950.** CD 8/16.

Ia., Denham Springs—Town, Sept. 19, collection sys., from Red River Constr. Co., P. O. Box 3132, Shreveport, **$161,197;** treatment plant, from Acme Plumbing Co., P. O. Box 1424, Mobile, Ala., **$81,267.** CD 9/1.

Mo., Mexico—City, John Cadwell, city clk., Sept. 20, approx. 7 mi. 8 to 21-in. sanitary **sewer, auxiliaries, appurtenances,** etc., from E. J. Fiscner, 4134 Westminster St., St. Louis, Zone 8, **$186,740.** Est. $190,000. CD 9/2.

N. J., Gloucester — Gloucester City Sewage Auth., City Hall, Sept. 16, general contract sewage treatment plant, incinerator plant, from C & T Constr. Co., 810 Haddon Ave., Collingswood, **$421,000;** mechanical work, from Roberts Filter Mfg. Co., 6 St. and Columbia Ave., Darby, Pa., **$288,300.** CD 9/7.

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Sept. 21, Contr. 5, structures and equip. for Owl's Head Sewage Treatment Works from Thompson-Starrett Co., Inc., 444 Madison Ave., New York, **$6,431,580*****Contr. 9, heating and ventilating, from Mechanical Installations, Inc., 24-16 Bridge Plaza South, Long Island City, **$187,471** ***Contr. 10, plumbing, from Thomas E. O'Brien Co., Inc., 362 W. 27 St., New York, **$140,467.** CD 9/13.

Wash., Bremerton—City, City Hall, Sept. 21, sewage treatment plant, from Hall-Atwater, Co., 907 Arctic Bldg., Seattle, Zone 4, **$193,500;** pump. station, from Hogland-Findley Eng. Co., Bremerton, **$79,000;** sewer main, from Lent's Inc., Bremerton, **$61,921.** CD 9/6.

CONTRACTS AWARDED

Ark., McCrory — City, imprv. sewer and water sys., to Arkansas Constr. Co., El Dorado, **$121,844.** CD 9/12, under LB.

Ill., Princeton—City, City Hall, sewage plant, incl. furnishing, installing equip., Sect. 5, to Clinton Eng. Co., Clinton, **$189,950.** Stanley Eng. Co., Hershey Bldg., Muscatine, engr.

Kan., Sterling—City, City Hall, sewage plant and outfall sewer, to Rhoades Constr. Co., Newton, **$140,000.** CD 3/15, under LB.

N. D., Bismarck—City, City Hall, storm sewerage sys., to Delzer Constr. Co., Bismarck, **$594,015.** Bids 9/6. CD 9/14, under LB.

BRIDGES

BIDS ASKED

October 12

La., Franklin — St. Mary Parish Police Jury, Franklin, Franklin Canal Bridge. Plans deposit $15. T. F. Kramer, 108 Commercial St., Franklin, engr.

October 24

N. Y., New York and Brooklyn — Dpt. P. Wks., Municipal Bldg., New York, Zone 7, reconstruct suspended spans the Brooklyn Bridge over East River. Plans deposit $15. CD 11/2/44.

LOW BIDDERS

California — State Div. Hys., Sacramento, Sept. 21, rein.-con. slab bridge and rein.-con. double box culvert across Kaweah River at Ketchum Ditch about 10 mi. N.E. of Visalia, Tulare Co., from C. B. Tuttle Co., 268 Belmont Ave., Long Beach, **$52,388;** structural steel beam bridge on rein.-con. piers, abutments, on timber piles and plant mix on crusher run surf. 0.9 mi. between Watsonville Junction and 1 St., Watsonville, Monterey and Santa Cruz Counties, from Dan Caltagirone & Edward Keeble, Rte. 1, Box 397, San Jose, **$476,582.** CD 8/29.

Louisiana — State Hy. Dpt., Baton Rouge, Sept. 21, Bayou Teche Bridge (Breaux Bridge) one 65 ft. I-beam vertical lift span seven 30 ft. fixed I-beam spans, c. conc. 0.067 mi. approaches, State Rt. 43, S. P. 56-04-09, St. Martin Parish, from J. P. Ewin, Inc., Box 361, Mobile, Ala., **$212,480.**

Maryland — State Hy. Dpt., Baltimore, Sept. 20, steel beam, concrete overpass bridge, double 66 ft. span to carry Beaver Dam Rd. over York Rd., Contr. H 578-7-415, near Cockeysville, Baltimore Co., from —. Melvin Roberts, Cockeysville, **$141,494.** CD 9/13.

Oregon—State Hy. Comn., Salem, Sept. 19, wid'n. 360 ft. concrete viaduct over McCord Creek, Columbia River Hy., FAP FI-248 (15), Multnomah Co., and construct 200 ft. steel truss span over Rogue River with 233 ft. rein.-con. viaduct approaches, Jackson Co., from Lindstrom Bros., 7335 N. E. Broadway, Portland, **$95,365** and **$130,958** respectively***260 ft. rein.-con. viaduct over Moffett Creek on Columbia River Hy., FAP FI-248 (15), Multnomah Co., from Frank Watt Constr. Co., 2020 N. E. 58 St., Portland, **$77,600.** R. H. Baldock, c/o owner, engr.

Oregon—State Hy. Comn., Salem, Sept. 20, 425 ft. rein.-con. viaduct over Tanner Creek on relocated Columbia River Hy., FAP FI-248 (15), Multnomah Co., from C. J. Eldon, 3101 N. Columbia Blvd., Portland, **$185,689.** R. H. Baldock, c/o owner, engr.

Wisconsin—State Hy. Comn., Madison, Sept. 20, structure B-44-3 and approaches Main Creek Bridge 0.041 mi. The S. T. H. 27-Sheldon Rd., C. T. Hy. D from Station 7 plus 44 to Station 12 plus 24, Contr. 1 Proj. S-0691 (3), Rusk Co., and structure B-13-8 Bowman Overhead Bridge 0.028 mi. Belt Line, U. S. Hy. 51 from Station 733A plus 84.7 to Station 740A plus 707 Contr. 1 Proj. FI 05-1 (19), Dane Co., from L. G. Arnold, Inc., Eau Claire, **$65,505** and **$201,904** respectively; structures Bark and Rock River Bridges 0.091 mi. The Palmyra-Ixonia Rd. S. T. Hy. 90 from Station 6 plus 15.25 to Station 7 plus 14.75, from Station 6 plus 63.25 to Station 7 plus 71 plus 75; from Station 21 plus 63.25 to Station 22 plus 56.75; from Station 23 plus 78.25 to Station 25 plus 51.75, Contr. 1, Proj. 0446 (1), Jefferson Co., from Peter Rasmussen & Sons, Oshkosh, **$133,501.** CD 9/2.

CONTRACTS AWARDED

California — State Div. Hys., Sacramento, 2 rein.-con. bridges for overcrossing over Santa Ana Parkway and outlet ramp at N. Main St.,

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $25,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork. Waterways	

Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final report published. On projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

♦ Federal Government
● Project of $1,000,000 or over.
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Los Angeles Co., to J. E. Haddock, Ltd., 3538 Foothill Blvd., Pasadena, **$570,171.** Bids 9/8. CD 8/16.

Connecticut — State, G. Albert Hill, hy. comr., Hartford, 446 ft. viaduct over Mill and Baldwin Sts. and Mad River and N. Y., N. H. & H. R. R. Co. and part of Waterbury Expressway, Waterbury, to Monroe, Langstroth, Inc., 52 N. Washington St., North Attleboro, **$529,224.** Bids 8/29. CD 9/2, under LB.

Michigan — State Hy. Dpt., Lansing, grade separation carrying Warren Ave. over John C. Lodge Expressway, Detroit, UI 814 of S2-22-12, C-1, Wayne Co., to Darin & Armstrong Inc., 2041 Fenkel St., Detroit, **$295,903.**

●**Pennsylvania** — State Hy. Dpt., Harrisburg, one plate girder and I-beam bridge and 2 I-beam bridges, bit. surf. for temporary paving railroad crossings, construct divided hy. of rein.-conc. pavement; rein.-con. paving, bit. surf. crushed aggregate base Route 289, R. 289 Parallel and R. 41005; construct c. conc. paving bit. surf. crushed aggregate base; 2 I-beam bridges and drainage on all ramps and connecting city and boro streets off Route, total length 7,785 ft. T.R.U.S. 15 over west branch of Susquehanna River, between Williamsport and South Williamsport, Lycoming Co., to George Vang, Inc., 623 Grant Bldg., Pittsburgh, **$2,464,455.** Bids 9/9. CD 9/21, under LB.

Washington — State Hy. Dpt., Olympia, steel truss span over Methow River with concrete girder approaches, grading 0.403 mi. approaches on Primary State Hy. 16, E.R.P. No. ER-F-4 (1), Unit 4, Okanogan Co., to State Constr. Co., 1750 19 Ave. S., Seattle, **$238,640.** Bids 9/23. CD 9/9.

Washington — State Hy. Dpt., Olympia, 2 steel girder bridges with concrete decks and approaches over Cedar River, grading, b. conc. surf. Primary State Hy. 5, F.A.S. S-0717 (1), King Co., to State Constr. Co., 1750 19 Ave. S. Seattle, **$230,166.** Bids 9/23. CD 9/9, under Streets and Roads.

Wash., Seattle — City, County-City Bldg., underpass under Roosevelt Way at Campus Parkway, to Henrik Valle Co., 407 3 Ave. W., **$151,584.** Est. over $50,000. Bids 9/21. CD 9/14.

Quebec— Dpt. P. Wks., Quebec City, replace wooden bridge with steel, concrete structure, St. Jovite, to Roland Champaux, St. Jovite, Approx. **$150,000.** O. Desjardins, c/o owner, engr.

STREETS AND ROADS

BIDS ASKED

October 13

Miss., Jackson—City, c/o City Engr., street paving, Proj. 126. Plans deposit $10.

†**Nebraska**—Bureau Reclamation, Dpt. Interior, New Customhouse, Denver, Colo., relocation county road at Enders Reservoir, Frenchman-Cambridge Div., Missouri River Basin Proj. Spec. R7-85 (Region 7).

October 14

Calif., King City—City, City Hall, imprv. streets, Proj. No. 49-1, approx. $50,000. Plans deposit $10. Leon Boling, 227 Salinas St., Salinas, engr.

Minn., Rochester—State Hy. Dpt., Rochester, production mineral aggregate for roadway surfacing and stockpiles for Maintenance Division; furnish, supply about 44,120 tons mineral aggregate in place. $55,000. O. L. Kipp, 1246 University Ave., St. Paul, engr.

October 18

Calif., Los Angeles—Los Angeles Co., Hall of Records, imprv. approx. 10,650 ft. Valley Blvd., Lemon Ave. to La Puente Rd., Walnut, $50,000. C. E. Arnold, co. engr.

LOW BIDDERS

●**Ill., Chicago**—City Dpt., Purchase Contracts & Supplies, City Hall, Sept. 22, two-level paving, Wacker Dr. between Randolph and Madison Sts., from Herlihy-Mid Continent Constr. Co., 79 W. Monroe St., Zone 3, **$1,052,383.** CD 9/14.

Louisiana—State Hy. Dpt., Baton Rouge, Sept. 21, c. conc. 6.964 mi. Gueydan-Morse Hy., State Rt. 128, S. P. 55-03-04, 212-02-02 and 212-03-06, Vermilion and Arcadia Parishes, from Flenniken Constr. Co., Box 634, Shreveport, **$529,370*****bit. surf., small drainage structures, timber trestle bridge, 6.903 mi. Chatham-Vernon Hy., State Rt. 17, S. P. 68-02-03, Jackson Parish, from Henry & Hall, Dubach, **$121,446*****c. conc. 1.931 mi., two 35 ft. and one 60 ft. I-beam span bridges, drainage structures, Bayou Bodcau-Sereno Hy., State Rt. 79, S. P. 83-05-04, Bossier and Webster Parishes, from T. R. Tomlinson, Doyline, **$175,229*****soil cement base course, c. conc. 13.55. mi. concrete slab span bridges, Jena-Urania Hy., State Rt. 6, S. P. 12-01-05, and 127-02-08, LaSalle Parish, from T. L. James & Co., Inc., Ruston, **$348,033*****soil cement or grav. base course, bit. surf. tr. 8.099 mi., rein.-con. slab span bridges, Bancroft-Merryville Hy., State Rt. 143, S. P. 187-04-05, Beauregard Parish, from W. R. Aldrich & Co., Box 1751 Baton Rouge, **$322,191*****c. conc. 7.55 mi. repairs to timber bridges, Pine Grove-Montpelier Hy., State Rt. 103, S. P. 262-05-04 and 262-06-03, St. Helena Parish, from W. H. Patterson & Co., Box 2229, Baton Rouge, **$103,145*****c. conc. 10.788 mi., timber bridges, small drainage structures, Georgeville-Loranger Hy., State Rt. 498, and None, S. P. 415-02-04, 415-03-06 and 714-00-62, Tangipahoa Parish, from Dickerson & Bowen, Brookhaven, Miss., **$207,189.** CD 9/9.

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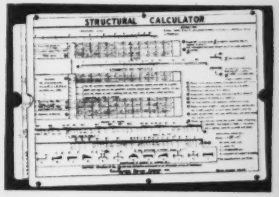

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Maryland—State Hy. Dpt., Baltimore, Aug. 30, single track railroad bridge to carry Oxford Branch, Delaware R.R. (P. R.R.) over Queen Anne-Baltimore By-Pass, State Rds. Contr. Q-224-4-215, Queen Annes Co., from George & Lynch, Inc., 18 and Broom Sts., Wilmington, Del., **$111,431.** CD 8/30.

Maryland—State Hy. Dpt., Baltimore, Sept. 20, grading, drainage, surf. 2.232 mi. Dorsey Rd., State Rt. 176 Contr. AA 384-2-315, Anne Arundel Co., from Wilmoth Paving Co., 60 P St. S. E., Wash. D. C., **$394,589;** modification vertical curves, drainage, resurf. 1.896 mi. National Pike U S. Rt. 40, Contr. W 391-1-615, Washington Co., from Bester-Long, Inc., Hagerstown, **$174,496.** CD 9/14.

Md., Baltimore—Mayor & City Council, City Hall, Sept. 21, Hy. Contr. 1020, from Baltimore Asphalt Block & Tile Co., 1320 N. Monroe St., **$70,501,** CD 9/14; Contr. 1019, from P. Flanigan & Sons, Inc., 2405 Loch Raven Rd., **$73,-275.** CD 9/16.

Michigan—State Hy. Dpt., Lansing, grading, drainage structures, stabilized aggregate surf. 4.905 mi. U. S. 45, from Wood Spur northwest into Ontonagon, Ontonagon Co., S. P. F 66-16 C-6, from Bacco Constr. Co., Iron Mountain, **$187,505.**

New Jersey—State Hy. Dpt., State House Annex, Sept. 20, resurf. South Bound Roadways Rt. 25 Sect. 34 F, from Delancy St. to south end of viaduct, Newark, Fed. Proj. F1-185 (9) Essex Co., from Franklin Contg. Co., 12 Central Ave., Newark, **$160,334.** CD 9/1.

●**Oregon**—State Hy. Comn., Salem, Sept. 20, bit. macad. 5.22 mi. Dodson-Bonneville sect. of Columbia River Hy., construct concrete grade separation, box culverts and log spans, furnish 10,000 cu. yd. crushed rock, FAP F1-248 (15), Multnomah Co., from Peter Kiewit Sons Co., 1024 Omaha Nat'l. Bank Bldg., Omaha, Neb., **$998,673;** grading, surf., oiling 8.8 mi. South unit, Princeton-Follyfarm sect. of Rome-Princeton Secondary Hy., furnish 2,700 cu. yd. crushed material FAP S-53 (2) Harney Co. (2), Malheur and Harney Counties, from M. L. & C. R. O'Neil, Creswell, **$222,054.** R. H. Baldock, c/o owner, engr.

†Oregon—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., Sept. 20, 90,750 sq. ft. concrete sidewalk and 41,025 lin. ft. curb at government townsite, McNary Dam, Serial No. CIVENG 45-164-50-23, from Weaver-Stafford Constr. Co., Pendleton, Schedule 1 **$72,837,** not $70,515. Schedule 2, **$93,240,** est $91,109. CD 8/31.

†Tennessee—U. S. Eng., P. O. Box 97, Memphis, Zone 1, asph. bank paving at several localities on banks of Mississippi River between Memphis and mouth of White River, CIVENG-40-041-50-27 from Sam Finley, Inc., 292 North Ave., Atlanta, Ga., **$191,900.** Est. $203,950.

Texas—State Hy. Dpt., Austin, Sept. 21, c. conc. 10.868 mi. Hy. FM 912, S 1344 (1) Erath Co., from D. H. Buchanan, 1318 N. 5 St., Temple, **$55,722***hot mix b. conc. paving, 5.874 mi. Hy. 286-9, C 74-6-17, Nueces Co., from Heldenfels Bros., Rockport, **$374,231** est. $335,000***asph. surf. 11.373 mi. Hy. FM 215 V 1054-2-2 and 1054-1-1, Bosque Co., from Erest Loyd, P. O. Box 1120, Fort Worth, Zone 1, **$67,075***grading, structures, base and base preservative 4.74 mi. Hy. FM 488, S 1111 (2) Freestone Co., from Lander Constr. Co., Waxahachie, **$514,100***single asph. surf. 8.41 mi. Hy. FM 346 and 756, C 889-4-1 and C 889-5-1, Smith Co., from E. W. Hable & Sons, Corsicana, **$86,124.** CD 9/1.

†Virginia—Bureau Pub. Roads, General Services Admin., 1440 Columbia Pike, Arlington, rejected bids Sept. 29, Proj. 6A-17, Part A, George Washington Memorial Parkway, Arlington Co., L. B. **$128,500.** CD 9/1, under LB.

Wisconsin—State Hy. Comn., Madison, Sept. 20, grading, draining, base course 2.98 mi. The C. T. H. EZ-Kenosha Rd. S. T. Hy. 174 from Station 25 plus 00 to Station 177 plus 22, Contr. 1, Proj. T 0844 (1), Kenosha Co., from Eric Bolander Constr. Co., Libertyville, Ill., **$87,208***grading, draining 7.574 mi. The Black Creek-north County Line Rd. S. T. Hy. 45 from Station 66 plus 07 to Station 461 plus 92, Proj. F 09-1 (12) Outagamie Co., from Kramp Constr. Co., 2775 S. 27 St., Milwaukee, **$371,378***grading, draining 9.76 mi. The South County Line-Bonduel Rd., S. T. Hys. 47 and 55 from Station 461 plus 92 to Station 977 plus 23 Proj. F-09-1 (13) Shawnee Co., from Harry & Joe Boulanger, Casco, **$309,816***grading, draining 4.76 mi. The Casco-Ville-Frenchville Rd. U. S. Hy. 53, from Station 6A plus 00 to Station 251 plus 56.8, Constr. 1, Proj. F 08-3 (26) Trempealeau Co., from Hoffman Constr. Co., Black River Falls, **$177,462***grading, draining 6.245 mi. The Rib Lake-North County Line Road, S. T. Hy. 102 from Station 0.23 plus 00 to Station 307 plus 00 Proj. T 046 (1), Taylor Co., from James Peterson & Sons, Medford, **$102,596***grading, draining 11.793 mi. Danbury East County Line and West County Line-Minong Roads, S. T. Hy. 77 from Station 37 plus 00 to Station 667 plus 00 Contr. 1, Projs. T-0759 (2) and T-0759 (1), Burnett and Washburn Counties from W. L. Kimmes, Inc. & Wm. L. Kimmes, Superior, **$157,361** ***grading, draining 1.989 mi. Belmont-Mineral Point Rd., U. S. Hy. 151 from Station 413 plus 60 to Station 518 plus 00 Contr. 1, F-012-1 (31) Iowa Co., from Luety Bros., Beloit, **$161,429.** CD 9/2.

†Wyoming—Bureau Public Roads, General Services Admin., New Customhouse, Denver, Colo., grading, draining, and base surf. 6.826 mi. Hy. Forest Proj. 3-A12, Hoback Canyon, Sublette Co., from Peter Kiewit & Sons, Sheridan, **$199,093.** CD 9/15.

CONTRACTS AWARDED

Ill., Chicago—City, City Hall, paving W. 51 St. between State St. and Halsted St., to Allied Asphalt Paving Co., 30 N. LaSalle St., Zone 2, **$309,506.** CD 8/8.

Ill., Chicago—City, City Hall, c. conc. or bit. on c. conc. paving Devon Ave. between Kedzie and Western Sts., to Arcole-Midwest Corp., 3225 Main St., Skokie, **$284,386.** CD 8/12, under LB.

Ia., LeMars—City, F. W. Stamp, clk., City Hall, 6 and 7 in. c. conc. 62 blocks, various streets, incl. storm sewers, etc., to Booth & Olson, Inc., 529 Insurance Exchange Bldg., Sioux City, **$305,800.** Est. approx. $300,000. Bids 9/15. CD 9/9.

●**Maryland**—State Hy. Dpt., Baltimore, grading, drainage, surf. 6.296 mi. divided highway, beginning at South River, near Defense Hy., U. S. Rt. 50, exten. westerly by relocation to point of Crain Hy., U. S. Rt. 301, S. P. AA 382-3-315 and P 331-2-515, Anne Arundel and Prince Georges Counties, to C. J. Langenfelder & Son, Inc., 8437 Pulaski Hy., Baltimore, **$1,971,861.** Bids 8/9. CD 8/12, under LB.

Michigan—State Hy. Dpt., Lansing, b. conc. resurf. 3.722 mi. M 53, M 50-10 C-3, b. conc. resurf. 3.053 mi. M 53, M 50-14 C-3, and b. conc. resurf. 2.562 mi. M 53, M 50-15 C-5, Macomb Co., to Cadillac Asph. Paving Co., 12490 Evergreen St., Detroit, **$158,786;** c. conc. 1.154 mi. utilities and ramps, M 112 Detroit and Dearborn UI 82-64-C-5 and UI 82-74 C-11, Wayne Co., to Oak Constr. Co. and Charles J. Rogers, Inc., Royal Oak, **$794,939.** CD 8/31.

Minnesota—State Hy. Dpt., St. Paul, grading 9 mi. S. P. 3402-04 (TH 7-119) and S. P. 4703-2 (TH 7-119) to Cerghino Constr. Co., Clara City, **$81,724;** grading 6.9 mi. S. P. 5506-08 (TH 42-42), to D. H. Bladtner & Son, Albany **$157,969.** Bids 9/16. CD 9/1.

New Jersey—State Hy. Dpt., Trenton, paving 2.973 mi. Rte 4 Parkway, Sects. 2 E and 4D from Rutgers Univ. to Inman Ave., Woodbridge Twp., U-188 (16), Middlesex Co., to S. J. Groves & Sons Co., State Hy. 35, Woodbridge, **$882,098.** Bids 9/15, awarded 9/21.

Oregon—State Hy., Dpt., Salem, grading, surf., oiling, 3.87 mi. Holdman Junction-Campbell Ranch sect., Athena-Holdman Secondary Hy., FAP S 56 (2) and grading, surf., oiling 13.9 mi. Holdman-Helix Sect. Holdman-Helix County Rd., Umatilla Co., to Newport Constr. Co., 7031 N. E. Halsey St., Portland **$68,509** and **$107,582** respectively***furnish, install 38,100 lin. ft. metal guard rail, 800 concrete sight posts, Troutdale-Bodiseo Sect., Columbit River Hy., Multnomah Co., to R. & M. Constr. Co., Central Point, **$82,.177***resurf. 7.54 mi. Otis-Sulphur Creek Sect. Salmon River Hy., Proj. 153 (4), Lincoln Co., to Warren Northwest Co., Box 5072, Portland, **$127,320.** Grand total $448,588. Bids 9/19, awarded 9/20.

Oregon—State Hy. Comn., Salem, grading, surf., oiling 7.54 mi. Otis-Rock Creek sect. Baker-Homestead Hy., Baker Co., to J. C. Papin, Baker, **$111,581;** grading, paving 5.32 mi. Marks Ranch-Lone Rock Bridge sect. North Umpqua county road, Douglas Co., to Del R. Bond Co., Bend, **$305,377.** Bids 9/20. R. H. Baldock, c/o owner, engr.

●**Pennsylvania**—State Hy. Dpt., Harrisburg, Schedule 1, construct divided hy. of c. paving, incl. rein.-con. paving for new east bound traffic separated from existing pavement by c. con. and/or earth divisor; divided hy. consisting bit. surf. c. conc. base wid'n.; rein.-con. paving exten. 2 structures, grading, drainage 2.1 mi. Bedford-Somerset Co. line, by rein.-con. pavement incl. constructing 5 rein.-con. structures and construct rein.-con. bridge, grading and drainage 23,140 ft. U. S. T. R. 22 from Lebanon-Berks Co. line easterly through Bethel and beyond intersection of L. R. 310, Berks Co., to C. W. Good, Inc., 726 Columbia Ave., Lancaster, **$1,774,159.** Bids 9/9. CD 9/14, under LB.

Tenn., Knoxville—City, City Hall, repaving 4 mi. streets, to Knoxville Constr. Co., River Terminal Rd., **$105,720.** Bids 9/13. CD 2/8/45.

Tex., Angleton—Brazoria Co., Angleton, road construction and imprv. drainage, Precinct 1, **$59,000;** Precinct 2, **$60,000;** Precinct 3, **$68,000;** Precinct 4, Approx. **$50,000,** force-account. Grand total $237,000. E. W. Garnett, co. engr. CD 9/29.

Tex., Hillsboro—Hill Co., c/o judge, Courthouse, farm-to-market road constr. and imprvs., 7.3 mi. Whitney to Huron, Precinct 1, Approx. **$90,000;** 4½ mi. Whitney to Aquilla, Precinct 2, Approx. **$52,000;** 1.3 mi. Hiram to McLennan Co. line, Precinct 3, Approx. **$60,000;** 4.8 mi. Itasca to Osceola, Precinct 4, **$55,000;** 5 mi. Malone to Irene, Precinct 5, Approx. **$55,000,** force account. Grand total $312,000. CD 7/15.

●**Utah**—State Road Comn., State Capitol, Salt Lake City, 1½ in. road mixed bit. surf. 11.108 mi. between East Canyon and Mt. Dell, FASP No. S-251 (2), Salt Lake and Morgan Counties, to Reynolds Constr. Co., Springville, **$109,366** est. $132,846***2 in. road mixed bit. surf. 6.138 mi. Wasatch Blvd. between 33 South and Big Cottonwood Canyon, and between 21 East St. and Wasatch Blvd., FASP Nos. S-295 (1), S-296 (1) and S-298 (1), Salt Lake Co., to Anderson Constr. Co., Price, **$136,350** est. $137,008***2 in. road mixed bit. surf. 17.927 mi. State Hy. 63 between Scipio and Sevier Co. line, FASP No. S-291 (1), Millard Co., to A. O. Thorne & Sons Constr. Co., Springville, **$281,964** est. $305,032***plant mixed bit. road surf. 6.589 mi. between Tintah and 106.67, U. S. Hy. 30, FAP F-62 (12), 31,000 tons bit. material, 815,500 cu. yd. unclassified excav., Weber Co., to L. T. Johnson Constr. Co., Ogden, **$480,192** est. $591,252. Grand total $1,007,872. Bids 9/20.

Virginia—State H. Dpt., Richmond, macad. 3.56 mi. incl. 2 bridges across Roanoke River and one bridge across Brakes Branch near Elliston, U. S. 11, Montgomery Co., to Albert Bros., Contractors, Inc., 1102 Tennessee St., Salem, **$589,381.** Bids 9/15. CD 9/19, under LB.

Washington—State Hy. Dpt., Olympia, surf., stockpiling 6.73 mi. Secondary State Hy. 1-P, Toledo to Vader, Lewis Co., to L. Dickson, 3115 N. Pine St., Tacoma, **$109,674,** CD 9/9; grading, placing selected roadway borrow on 4.24 mi. Primary State Hy. 1, Ostrander to Castle Rock F. A. P. FI-001-1 (6) Unit 2, Cowlitz Co., to Peter Kiewit Sons Co., Longview, **$128,924.** Bids 9/23. CD 9/14.

EARTHWORK, WATERWAYS

BIDS ASKED

October 11

†Illinois—U. S. Eng., 826 U. S. Court House and Custom House, St. Louis, Zone 1, Mo., repairs, alterations to gravity drainage structures, Wood River, Harrisonville and Ivy Landing, Stringtown, Ft. Chartres & Ivy Landing Degognia and Fountain Bluff Drainage and Levee Dist., Madison, Monroe, Randolph and Jackson Counties, Serial No. CIVENG 23-065-50-19. Extended date. CD 9/20.

†Virginia—U. S. Eng., P. O. Box 119, foot of Front St., Norfolk, Zone 1, intake gates, frames and guides, Philpott Reservoir Proj., Roanoke River Basin, Smith River, CIVENG-44-110-50-22.

October 12

†Maryland—U. S. Eng., P. O. Box 1715, Baltimore, Zone 3, maintenance dredging Susquehanna River above and below Havre de Grace: Kent Island, Narrows (Chester River) Queen Anne Co.; Knapps Narrows, Talbot Co.; Broad Creek, Somerset Co.: Twitch Cove and Big Thoroughfare River and Tylers River, Somerset Co., and Parish Creek, Anne Arundel Co., Serial No. CIVENG 18-020-50-6.

†West Virginia—U. S. Eng., Huntington, Zone 18, dike line below Leadmine Locks and Paint Creek Shoals, Kanawha River, Serial No. CIVENG-46-022-50-30.

October 13

†Idaho—Bureau Reclamation, Dpt. Interior, Burley, drilling Water Supply Wells, 8A823, 27A823, 6A824, 8A824, 18A824, 21A284 and 9A823, within a radius of 12 mi. from Rupert, Spec. RI-56.

October 14

Minn., Winthrop—Sibley Co., W. C. Oldenburg, aud., Gaylord, County Ditch 42, 633,498 cu. yd. excav., furnish, install 380 ft. multi-arches, 720 ft. culverts, 42 ft. corrugated metal culverts, 80 ft. corrugated metal outlet pipes, 7,300 ft. 7- to 18-in. drain tile, $117,392. E. L. Chamberlain, Olivia, engr.

October 18

†Idaho—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., levee and bank protection, Snake River, approx. 3 mi. northeast of Ririe, Jefferson Co., Serial No. CIVENG 45-164-50-37.

†New Mexico—Bureau Reclamation, Dpt. Interior, Old Post Office Bldg., 7 and Taylor Sts., Amarillo, Tex., earthwork, concrete lining, structures, station 3 plus 00 to station 137 plus 00, canal, incl. pumping plant, station 136 plus 65, Fort Sumner Proj., near Fort Sumner, Spec. 2796.

†North Dakota—U. S. Eng., Fort Lincoln, Box 300, Bismarck, excavation and main embankment, Stage III, Garrison Dam and Reservoir, Riverdale, Serial No. CIVENG-32-015-50-16. CD 9/6.

†South Dakota—U. S. Eng., 1709 Jackson St., Omaha, Neb., furnishing intake bulkhead frames for intake structure of Fort Randall Dam, Charles Mix Co., near Lake Andes, Spec. No. CIVENG-25-066-50-29.

LOW BIDDERS

●**†Arizona and Nevada** — Bureau Reclamation, Dpt. Interior, Dam Dam, Nev., Sept. 7, installing electrical and hydraulic machinery, appurtenances, erecting steel structures, Davis Dam Power Plant and Switchyard, Davis Dam Proj., Spec. 2733, from Donovan, James, Wismer & Baker, 1709 Lowell Ave., St. Paul, Minn., **$1,508,830.** CD 8/19.

†Connecticut—U. S. Eng., Army Base, Boston, 10, Mass., Sept. 20, dredging at New Haven Harbor, from American Dredging Co., 12 S. 12 St., Phila., Pa., **$125,440.** CD 8/26.

†Iowa—U. S. Eng., 1709 Jackson St., Omaha, Neb., Sept. 6, underground seepage work, agricultural levees, exten. from Thurman to Hamburg, from Layne-Western Co., 4430 Commercial Ave., Omaha, Neb., **$108,954.** Est. $154,908. CD 8/24.

●**†Montana**—Bureau Reclamation, Dpt. Interior, Columbia Falls, Sept. 20, clearing part of Hungry Horse Reservoir site, Hungry Horse Proj., 25 to 45 mi. southeast of Columbia Falls, on Spotted Bear Rd., Spec. R1-HH10, from Nello L. Teer Co., Durham, N. C., **$6,715,100.** CD 9/9.

†**New Jersey** — U. S. Eng., 121 N. Broad St., Phila., 1, Pa., Sept. 22, dredging Barnegat Inlet, Inv. No. CIVENG-36-109-50-12, from J. A. LaPorte, 1101 Wilson Blvd., Arlington, Va., **$122,200.** CD 8/24.

†**Rhode Island**—U. S. Eng., Army Base, Boston 10, Mass., Sept. 21, repair riprap breakwater, Harbor of Refuge, Block Island, Serial No. CIVENG-19-016-50-13, from Gencarelli Inc., Oak St., Westerly, **$107,520.** CD 8/26

CONTRACTS AWARDED

Montana — Montana State Water Conservation Bd., Helena, canal structures, Musselshell Co., to Billings Constr. Co., Billings, **$41,871;** diversion dam and canal structure, Madison Co., Schedule I, to Madsen Bros., Fairfield, **$27,518,** Schedule II, to W. M. Cocahougher, Twin Bridges, **$31,472.** Grand total $100,861. Bids 9/1. CD 8/3/45.

†**Nebraska**—U. S. Eng., 1709 Jackson St., Omaha, dikes and revetment adjacent Missouri River at Frazer-Lower Brownville Bends, Inv. 4, to Cunningham-Kiewit Co., 4229 Lafayette Ave., Omaha, **$547,573.** Bids 8/11. CD 9/7, under LB.

†**Utah** — Bureau Reclamation, Dpt. Interior, Provo, Murdock diversion dam and Provo Reservoir canal, Station 2 plus 86.37 to 5 plus 55, Provo River Proj., Deer Creek Div. Spec. 2741, to Vinnell Co., Inc., 500 E. Green St., Pasadena, Calif., **$166,064.** Bids 8/23, awarded 9/19. CD 8/31, under LB.

AIRPORTS AND AIRBASES

BIDS ASKED

October 13

†**Neb., Omaha**—LANDING SYSTEM—Civil Aeronautics Admin., City Hall, 414 E. 12 St., Kansas City, Mo., instrument landing sys. and neon approach light land and dismantling lane. CD 11/13/46.

October 20

●**Tex., Fort Worth** — AIRPORT — City, W. O. Jones, mgr., Fort Worth, Contr. 2, paving runways, etc. at Greater Fort Worth International Airport, near Arlington. $2,000,000. Plans deposit $25. Wyatt C. Hedrick, 1005 First Natl. Bank Bldg., engr. CD 2/28.

O., Canton—HANGAR—Timken Roller Bearing Co., 1801 Dueber Ave., S.W., soon lets contract 1 story 100x100 ft., brick, steel hangar for Stark and Summit County Airport. $90,000. Plans deposit $15. C. M. Marat, c/o owner, engr.

LOW BIDDERS

Mont., Missoula—ADMINISTRATION BLDG. —Missoula Co., Missoula, administration bldg. at airport, from Hightower & Luvrecht, Constr. Co., Missoula **$134,580.** Fox & Ballas, Missoula, archts. CD 12/1.

R. I., Hillsgrove — AIRPORT — State of Rhode Island, Providence Plantation, State House, Providence, Sept. 21, airport imprvs., Theodore Francis Green Airport, from M. A. Gammino Constr. Co., 728 Valley St., Providence, **$174,700.** Thompson Lichtner & Co., Inc., 8 Alton Pl., Brookline, Mass., engrs.

●**Tex., Fort Worth**—BUILDING AREA IMPRVS.—Lt. John L. Morris, construction officer, Carswell Air Force Base, Fort Worth, Sept. 1, paving materials 32,500 tons hot mix b. conc for addn. aircraft parking area, from Cwalde Constr. Co., P. O. Box 3027, Dallas, **$143,000.** CD 8/12.

Tex., Marshall — AIRPORT — Harrison Co., R. M. Nichols, judge, Marshall, cancelled bids to have been opened July 26, airport imprvs., driveway, runway, taxiway, apron, asph. paving, drainage, sanitary disposal, runway lighting, fencing. **$152,368.** Will re-advertise. CD 6/23.

Tex., Waco — TERMINAL — City, cancelled bids to have been opened Sept. 22, 3 story, 62x136 ft., brick, hollow tile airport terminal, seasonal air-conditioning, etc. **$200,000.** Will re-advertise. N. E. Wiedemann, Liberty Bldg., archt. A. C. McAdams, Majestic Bldg., Fort Worth, structural engr. L. E. Kante, N. P. Anderson Bldg., Fort Worth, mechanical engr.

FOREIGN

Africa, Owen Falls—Uganda Electricity Bd., London, England, awarded contract 400 yd. dam, 30 ft. high, and power station at outlet of Lake Victoria, to syndicate headed by Christiani & Nielsen, Ltd., with offices at 350 Fifth Ave., New York, N. Y., U. S. A., London, England, and Copenhagen, Denmark. The group includes seven British and Netherlands companies. Bids 8/15. CD 7/14.

AMERICANS ABROAD

N. W. I., Aruba—Lago Oil & Transport Co., c/o Robert Law Weed, archt., 1527 Dupont Bldg., Miami, Fla., U. S. A., receiving bids (selected list bidders) 1, 4 and 5 story hospital. Approx. $1,000,000.

PUBLIC BUILDINGS

BIDS ASKED

October 10

Ont., Chatham — ADMINISTRATION — Kent Co., M. M. Abraham, co. clk., Harrison Hall, 4 story, 50x100 ft. and 2 story, 40x67 ft. wings, T-shaped rein.-con., brick, steel, administration bldg. Approx. $350,000. Plans deposit $25. J. W. Storey, 169 Queen St., Chatham, archt. CD 7/21.

October 11

Mo., Hayti — SCHOOL — Bd. Educ., Consolidated School Dist. 10, Ray J. Campbell, secy., Hayti, 2 story, 35x57 ft. high school addn., 1 story, 35x67 ft. and 1 story, 42x110 ft. school addns. Plans deposit $25. Bonsack & Pearce, Inc., 308 N. 6 St., St. Louis, Zone 1, archt.

Ont., Lakeview—SCHOOL—Page & Steele, archts., 72 St. Clair Ave. W., Toronto, steel, concrete brick school, concrete fdns., Ogden Rd., for School Sect. No. 7, Toronto Twp., J. Boyle, secy. Approx. $250,000. Plans deposit $50. CD 2/11.

October 12

Okla., Oklahoma City — SCHOOL — Bd. Educ., 400 N. Walnut St., Zone 3, Monroe School, N.W. 48 and Linn Sts. $250,000. Plans deposit $25. Wright & Selby, Hightower Bldg., Zone 2, archts. CD 5/2.

October 13

Conn., East Hartford — HOUSING — Town, Eugene L. Clarkin, chn. East Hartford Housing Auth., 71 Cannon St., 33 bldgs. and 80 family frame garden apartment dwellings. Proj. MR-23, Riverside Park, $750,000. Plans deposit $50. Kane & Fairchild, 49 Pearl St., Hartford, archts. CD 3/24.

Fla., Winter Haven — SCHOOL — Polk Co., Bd. Pub. Instruction, Winter Haven, school, Henry A. Tilden, Winter Haven, archt. CD 7/1/48.

Kan., Arkansas City — HOSPITAL — City, City Hall, city hospital. $600,000. W. T. Schmitt, 1634 N. 10 St., Oklahoma City, Okla., archt. CD 7/18, under LB.

La., Oak Grove — SCHOOL — Parish School Bd., Oak Grove, elementary School, high school, trade school and home economic cottage, Smith & Padgett, 512 Ouachita Bank Bldg., Monroe, archts.

October 13

Minn., Grand Rapids—COURT HOUSE—Itasca Co., R. J. Whaling, aud., Grand Rapids, court house. $400,000. Jyring & Jureness, Hibbing, archts. CD 2/11.

Tex., Houston — SCHOOL — Houston Independent School Dist., 1600 Washington St., brick Wesleyan Road School, concrete slab fdn., $250,000. Extended date. Stayton Nunn, 2425 Ralph St., co-ord. archt., Ernest L. Shult, 5009 Fannin St., archt. W. P. Moore, 4605 Montrose St., engr. Ray L. Jenkins, 4316 Blossom Dr., mech. engr. CD 9/15.

Ont., Chatham—SCHOOL—J. W. Storey, archt., 169 Queen St., school and 4 room kindergarten addn., Victor Lauriston School, for Bd. Educ., Chatham. Dr. H. A. Tanser, inspector, Approx. $250,000. CD 4/14.

October 14

Mass., Boston—HOUSING—City of Boston, Boston Housing Auth., John J. Coleman, chn., housing, State Aided Proj. Boston 200-4. Approx. $250,000. Plans deposit $100.

N. C., Charlotte — SCHOOL — Bd. School Comrs., J. M. Dunlap, bus. mgr., Park Road School. Plans deposit $25. C. W. Connelly, 702 Builders Bldg., engr. and archt. CD 12/1/48.

Ore., Huntington — HIGH SCHOOL, etc. — School Dist. 16, Huntington, brick, unit to house high school, elementary school and gymnasium, concrete fdns. Plans deposit $25. Charles B. Miller, Pendleton, archt.

Ont., Gravenhurst—SCHOOL—W. T. A. Scott, secy., c/o Bd. Educ., Gravenhurst, 2 story, 80x185 ft., rein.-con. brick, steel Gravenhurst Dist. High School. Approx. $275,000. Plans deposit $25. S. B. Coon & Son, 4 St. Thomas St., Toronto, archts.

October 17

Calif., Culver City — MEMORIAL — City, 36,000 sq. ft. rein.-con. veterans memorial bldg., Culver Blvd. and Overland Ave. $400,000. Hugh Davies, Security Bldg., Long Beach, archt.

October 18

Ala., Anniston — SCHOOL — City Bd. Educ., Anniston, Junior High School. $500,000, Extended date. Pearson, Tittle & Narrows, First National Bank Bldg., Montgomery, archts. CD 9/9.

October 19

†**Calif., Pasadena**—ENGINEERING—U. S. Eng., 751 S. Figueroa St., Los Angeles, engineering bldg. at Jet Propulsion Laboratory, Serial No. 50-4, $100,000.

LOW BIDDERS

Calif., El Segundo—WAREHOUSE, etc.— City, Sept. 14, 1 story, rein.-con., warehouse and shops at Hyperion Activated Sludge Plant, from W. E. Robertson Co., 4015 W. Jefferson St., Los Angeles, **$414,414.** CD 8/26.

Calif., Merced—SCHOOL—Merced Elementary School Dist., Merced, Sept. 20, Franklin School, Ragsdale Intermediate School and Oleander Acres School, from Larsen-Ratto Constr. Co., 1901 Hedges Ave., Fresno, **$550,056.** CD 9/7.

Idaho, Orofino—DORMITORY—State Dpt. P. Wks., Boise, 2 story, rein.-con. dormitory Idaho State Hospital, from McCormack Constr. Co., Pendleton, Ore., **$497,183.** Hummel, Hummel & Jones, Boise, archts.

Ia., Cedar Falls—DORMITORY—State Bd. Educ., Des Moines, Sept. 14, general contract women's dormitory, Iowa State Teachers College, from John G. Miller Constr. Co., Waterloo, **$987,380.** CD 8/9.

Mass., Norton—SCHOOL—Town of Norton School Bldg. Comm., Town Hall, Sept. 20, school, W. Main St., from Walter H. Barker, Inc., 23 Main St., Taunton, **$479,412.** CD 9/14.

†**N. Y., Schenectady**—ADMINISTRATION—U. S. Atomic Energy Comn., c/o General Electric Co., River Rd., Sept. 20, administration and security bldg., fire station, equip. maintenance shop, carpenter and machine shop, warehouse, completing access road, clearing, rough grading, drainage, site roads and pavement, steam and electrical distr. sys., sewage collection, sewage disposal and water distr. systems, water tank at West Milton, Inv. AE 50-SCH-1, from Thompson Constr. Co., 11 N. Pearl St., Albany, **$560,311.** Jackson & Moreland, 31 St. James St., Boston, Mass., engrs. CD 8/23.

N. C., Chapel Hill—LIBRARY—University of North Carolina, Chapel Hill, Sept. 22, general contract library addns., from J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, **$983,400.** CD 8/30.

N. C., Smithfield—HOSPITAL—Johnston Memorial Hospital, Carl P. Worley, ch. Bd. Trustees, Sept. 20, hospital, from T. A. Loving & Co., Goldsboro, **$581,485.** CD 8/26.

●†**S. C., Columbia** — REGIONAL OFFICE — Pub. Bldgs. Admin., General services Admin., 18 and F Sts., N.W., Wash. 25, D. C., Sept. 22, Veterans Admin. Office Bldg., from Ray M. Lee Co., Edgewood Ave. N.E., Atlanta, Ga., **$1,058,812.**

B. C., Vancouver — UNIVERSITY — Minister P. Wks., Province of British Columbia, Parliament Bldgs., Victoria, Sept. 21, 4 story, 81x184 ft. wings V-shaped Preventive Medicine Bldg., University of British Columbia, from Commonwealth Constr. Co., Ltd., 670 Taylor St., **$813,882.** CD 8/23.

CONTRACTS AWARDED

Calif., Sacramento — PLANT — Sacramento-Yolo Port Dist., Courthouse, rein.-con. monolithic terminal bulk grain elevator, plant and warehouse, to Barrett & Hilp, 918 Harrison St., San Francisco, and Henry George & Son, Huttpn Bldg., Spokane, Wash., **$674,446.** Bids 9/12. CD 9/19, under LB.

●**Conn., Storrs**—DORMITORIES—State, Raymond S. Thatcher, State Capitol, Hartford, 7 dormitories for girls, University of Connecticut, Proj. B/A-D-126, to Frouge Constr. Co., 74 Goodsell St., Bridgeport, **$2,387,000.** Bids 9/7. CD 9/12, under LB.

●**Ill., Chicago**—HOUSING—Chicago Housing Auth., 343 S. Dearborn St., 136 dwelling units, multiple story apartment bldgs., relocation Proj. No. 4, Ogden Blvd., Fairfield and Talman Sts., to Welsco Constr. Co., 345 S. Pulaski Rd., **$1,272,430.** Bids 8/11, awarded 9/12. CD 8/17, under LB.

Ill., Lyons—SCHOOL—Lyons Twp. School Dist. 204, 100 S. Brainerd St., general contract 2 story, 100x175 ft., brick, steel, concrete stone athletic bldg., 3 story 60x120 ft. brick, steel, concrete stone music bldg., Lyons Twp. High School, to Coath & Goss, Inc., 5103 W. Lake St., Chicago, **$679,382.** Bids 9/14, awarded 9/20. CD 8/24.

La., Ruston—DORMITORIES—State, Capitol Bldg., Baton Rouge, 2 dormitories at Louisiana Polytechnic Institute, to Tudor Constr. Co., Alexandria, **$559,666.** Bids 8/25, awarded 9/21. CD 8/30, under LB.

La., Thibodaux—SCHOOL—Lafourche Parish School Bd., Thibodaux, high school and 3 gymnasiums, to Union Constr. Co., 2634 Almonaster Ave., New Orleans, **$500,659.** Bids 9/23, awarded 9/25.

●**Nev., Reno**—SCHOOL—Reno School Dist. 139 W. 8 St., 1 and 2 story high school, to Nomellini Constr. Co., Box 542, Stockton, Calif., **$2,643,363.** CD 8/9, under LB.

Wash., Centralia—SCHOOLS—School Dist. 401, Centralia, 2 schools, to John H. Sellen Constr. Co., 228 9 Ave. N., Seattle, Zone 9, **$502,022.** Bids 9/15. CD 9/1, under LB.

B. C., Duncan—SCHOOL—Cowichan School Dist. 65, Duncan, frame, stucco, Junior-Senior High School, to Bennett & White Constr. Co., Ltd., 660 Howe St., Vancouver, **$564,651.** Awarded 9/23. CD 7/27, under LB.

B. C., Victoria—HOMES—Central Mortgage & Housing Corp., 360 Homer St., Vancouver, 100 homes, to Commonwealth Constr. Co., Ltd., 670 Taylor St., Vancouver, **$545,000.** Bids 9/6, awarded 9/21. CD 8/23.

N. B., Saint John—POST OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., post office addn., alterations, to Acme Constr. Co. Ltd., 45 Canterbury St. Approx. **$887,397.** G. Brault, c/o owner, archt. CD 8/23, under LB.

Ont., Picton—HOUSING—Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, 200 houses, (Picton D. N. D. Non-Urban Proj. 1/49, to Sterling Constr. Co. Ltd., 2494 Sandwich St. E., Windsor, Approx. **$700,000.** Bids 9/13. CD 8/30.

Que., Farnham—HOUSING—Central Mortgage & Housing Corp., Ottawa, Ont., 35 cottages, to Desourdy Constr. Ltd., 753 North St., Cowansville, **$400,000.** J. J. O'Sullivan, 1253 McGill College Ave., Montreal, engr.

COMMERCIAL BUILDINGS

BIDS ASKED

October 14

Mo., St. Louis County (St. Louis, Zone 5, P. O.)—RETREAT HOUSES—Sisters of the

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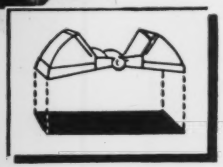

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Cenacle, Rev. Mother Donohue, 7837 Natural Bridge Rd., Normandy, St. Louis, Zone 21, 2 story, bsmnt., brick retreat house, 44 acre tract, Conway and Spoede Rds. Approx. $500,000. Maguoli & Quick, 4908 Delmar Bldg., St. Louis, Zone 8, archts.

After October 15

N. C., Charlotte—CHURCH—First Presbyterian Church, Dr. Charles Kraemer, pastor, 202 W. Trade St., church addns., incl. Fellowship Hall, remodel Sunday School addns., chapel, $300,000. Charles W. Connelly, Builders Bldg., archt.

October 18

Tex., Dallas—MERCANTILE—Louis J. Hexter, Sam Lobello & Assoc., 1312 Main St., Unit 1, suburban mercantile, $250,000. De Witt & Swank, 2025 Cedar Springs Rd., archts. CD 1/14.

Bids Asked

●**Wis., Eau Claire** — HOSPITAL — Luther Hospital, Eau Claire, 4 story hospital addn., remodeling, $800,000 - $1,000,000. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., archts. CD 2/4.

SOON LETS CONTRACT

●**Calif., Los Angeles** — OFFICE — Los Angeles Jewish Community Council, 590 N. Vermont Ave., soon lets contract 5 story 100,000 sq. ft. rein.-con. office, $1,000,000. Albert Criz, 556 S. Harvard Blvd., archt. CD 3/3.

Conn., Storrs — SYNAGOGUE, etc. — Hillel Foundation, M. A. Savin, chn. Bldg. Comn., Storrs, soon lets contract 1 story with 2 wings brick georgian colonial style synagogue, incl. offices, small chapel rooms and kitchen, University of Connecticut. Ebbet, Frid & Prentice, 862 Asylum Ave., Hartford, archts. CD 5/24.

●**Tex., Houston** — MERCANTILE — Sakowitz Bros., 720 Main St., soon lets contract 4 story (ultimately 5 story) bsmnt. mercantile bldg., concrete pier and beam fdn. for 10 story bldg. $6,000,000. Alfred C. Finn, archt., and Robert J. Cumming, engr., both Bankers Mortgage Bldg. CD 8/30.

Tex., San Antonio — BANK, etc. — Alamo National Bank, Reagon Houston, pres., Commerce and St. Marys Sts., soon lets contract reconditioning, remodeling 23 story bank and office, incl. refrigeration unit, $450,000. Plans deposit $25. C. Rinard, 2010 Alamo Natl. Bldg., archt. Halsey & Royer, 2107 Transit Tower, engrs. Matthews & Kenan, 1908 Transit Tower, structural engrs. CD 6/16.

●**Tex., San Antonio** — HOSPITAL — Baptist Memorial Hospital, Inc., 215 Camden St., soon lets contract Contr. 1, general contract 7 story, bsmnt., masonry maternity hospital, $1,250,000. Plans deposit $50; Contr. 2, heating plant and steam pipe sys., $100,000; Contr. 3, air-conditioning sys., $85,000; Contr. 4, refrigeration plant, $75,000. Plans deposit $25 each. Bartlett Cocke, 3501 Broadway, archt. W. E. Simpson Co., Milam Bldg., structural engr. Halsey & Royer, Transit Tower, mechanical engr. CD 9/8.

CONTRACTS AWARDED

●**Ala., Birmingham** — HOMES — Oak Groves Estates, c/o contractor, 200 homes, to Marbury & Boriss, Massey Bldg., Approx. **$1,000,000.**

Calif., Los Angeles — OFFICE — Columbia Picture Corp., 1438 N. Gower St., office, to C. L. Peck, 816 W. 5 St., **$596,000.** Awarded 9/19. Claud Bulmar & Herman Spackller, 7421 Beverly Blvd., archts.

●**Calif., Los Angeles**—DWELLINGS—Compton Park, 630 Wilshire Blvd., 220 frame, stucco dwellings in Van Nuys. Owner builds, **$1,210,000.** Southwest Drafting Service, 2724 W. Florence Ave., archts.

●**Calif., Los Angeles**—DWELLINGS—Sherman Park Development Co., 1150 S. Beverly Dr., 206 frame, stucco dwellings Sherman Way, Cantlay and Valerio Sts., Losaine and Andasol Aves., etc. Owner builds. Approx. **$1,500,000.** E. H. Fickett, 5678 Wilshire Blvd., archt.

Calif., Santa Ana—DWELLINGS—Diamond Manor Tract, Santa Ana, 84 frame stucco dwellings, to Vern Huck, 302 Rowena Ave., Los Angeles, Approx. **$581,000.**

Conn., East Hartford — HOUSING — T. Shannon & Sons, 498 Forbes St., 70 single frame family units, Oak St. and Silver Lane. Owner builds. **$700,000.** CD 9/23.

●**Conn., Hartford** — HOUSING — Arthur G. Woods, 1098 Matianuck Ave., Windsor, 275 single frame housing units, Handel Rd. and Forbes St. Owner builds. **$3,300,000.** CD 9/23.

Fla., North Miami — HOMES — N - Two, Inc., c/o contractor, 36 homes, to Nichols Constr. Co., 13700 N. W. 7 Ave., Approx. **$750,000.**

Ga., Atlanta—APARTMENT UNITS—Wellswood Apartments, Inc., c/o contractor, 100 apartment units, to Jordan Contg. Co., Andrews Rd., Columbus, Approx. **$515,000.**

●**Ill., Chicago** — SCHOOL — Congregation of Resurrection 5246 W. Palmer St., Zone 39, 2 story, 67x224 ft., steel brick, stone school, 1 story, 107x132 ft. concrete, stone, gymnasium, to George Sollitt Constr. Co., 109 N. Dearborn St., Zone 2, **$1,000,000.** Awarded 9/16. W. F. McCaughey & Assoc., Park Ridge, archts.

La., New Orleans — HOUSING — Duplessis Homes, c/o contractor, residential development, to Shelby Constr. Co., 4320 Paris Ave., Approx. **$500,000.**

●**N. J., Pennsauken** — RESIDENTIAL DEVELOPMENT — Wayne Constr. Co., 101 N. 7 St., Camden, residential development,

Browning Rd., separate contracts, **$2,100,000.** W. D. Faint & Co., 1915 Browning Rd., engrs.

●**N. Y., Auburndale** — APARTMENTS — Jack Maich & Arnold Holzer Assoc., c/o Gustave W. Iser, archt., 109 E. 29 St., New York, Zone 16, Birchwood Manor Garden Apartments, on 75 acre tract, 35 Ave. and 204 St. Owner builds. **$10,000,000.**

●**N. Y., Bayside** — HOSPITAL — Episcopal Sisterhood of St. Mary's, c/o George B. Post & Sons, archts., 101 Park Ave., New York, Zone 17, hospital on 6 acre site, 216 St. and 29 Ave., to William L. Crow Constr. Co., 101 Park Ave., Zone 17. Approx. **$1,000,000.** CD 3/11/48.

●**N. Y., Poughkeepsie**—HOSPITAL—St. Francis Hospital, North Rd., general contract hospital addn., to Turner Constr. Co., 420 Lexington Ave., New York, Zone 17, **$1,870,000.** Bids 8/25. CD 8/17.

●**N. Y., Syosset** — HOUSES — Haskel Gordon & Max Fichtenbaum, c/o John W. Burton, archt., 163-18 Jamaica Ave., Jamaica, 250 houses on 50 acre tract, Jackson Ave., near Jericho Turnpike. Owner builds. **$1,250,000.**

●**N. Y., Woodside**—APARTMENT—Sun-Wood Homes, Inc., c/o R. Lindheim, archt., 668 Lexington Ave., New York, Zone 22, 115 family apartment, 39 Ave. and 52 St. Owner builds. **$1,000,000.** CD 7/13.

N. C., Thomasville—CHURCH—The Memorial Methodist Church, Thomasville, general contract church, to R. K. Stewart & Son, High Point, **$419,220.** CD 9/15, under LB.

O., Rocky River — HOMES — Merrick-Kleist Constr. Co., 1360 Blount Ave., 100 1½ story homes, separate contracts. **$825,000.** Albert R Stabo, 1432 Schofield Bldg., Cleveland, archt.

S. C., Greenville—DUPLEXES—Baker-Cannon Constr. Co., Vero Beach, Fla., 22 duplex homes. Owner builds. **$400,000.**

Tex., Beaumont—HOUSING—M. L. Lefler, Jr. & Assoc., Wiess Bldg., 125 rental housing units, northwest sect. of city, and 75 rental housing units, southeast sect. of city, to Holliday Constr. Co., 2990 Crockett St. Approx. **$600,000** and Approx. **$365,000** respectively. CD 9/23.

●**Tex., Dallas**—RESIDENCES—Crown Constr. Co., 1911 S. Westmoreland St., 400 medium priced residences, on 95½ acre tract, own forces. **$3,200,000.** CD 9/16.

Tex., Dallas—DUPLEXES—O. J. Parrott & Assoc., Lawnvale and Scyene Rd., 100 duplexes, Parkdale addn., own forces. **$675,000.** CD 2/3/48.

Tex., Dallas—DWELLINGS—O. J. Parrott & Assoc., Lawnvale and Scyene Rd., 150 dwellings, area adjacent Parkdale Golf course, own forces. **$775,000.** CD 10/9/47.

Tex., Houston—HOUSING—McCanse Co., c/o Park Oaks, housing in Park Pl. Owner builds. Approx. **$450,000.** CD 9/20.

Tex., Houston—DWELLINGS—Oak Estates, c/o S. H. Adams, 3713 Inwood Dr., addnl. dwellings, adjacent River Oaks Tall Timber area. Owner builds. Approx. **$550,000.** CD 9/23.

Tex., Houston—STORE—Sears, Roebuck & Co., 4207 Main St., store, 43 and Garden Oaks Blvd. at N. Shepherd Dr., to W. S. Bellows Constr. Co., 716 N. Everton St., **$749,000.** Bids 9/15. CD 9/7.

Tex., San Antonio—DWELLINGS—G. S. McCreless, 1102 Fair St., addnl. 88 dwellings in the Highlands. Purchase and Hire. Approx. **$630,000.** CD 9/23.

●**Wash., Yakima** — HOUSES — Orchard Park Homes, 102 N. 2 St., 200 one and half story, frame houses, day labor, **$2,000,000.** J. Petter, Liberty Bldg., archt.

B. C., Vancouver—BANK—Dominion Bank, 207 W. Hastings St., 3 story, basmt., 70x130 ft., rein.-con. bank, to Northern Constr. Co. & J. W. Steart, Ltd. 1304 Hornby St., **$650,000.** Bids 8/29, awarded 9/21. CD 8/12.

●**Ont., Ottawa** — HOUSING — Owner, c/o contractor, 130 houses, Prescott Highway (No. 2) adjoining Base Line Rd., to James More & Son, Ltd., 239 Argyle Ave., Approx. **$1,170,000.** J. J. Russell, c/o owner, engr.

INDUSTRIAL BUILDINGS

SOON LETS CONTRACT

Tex., Houston — PARKING GARAGE — Sakowitz Bros., 720 Main St., soon lets contract 5 deck, steel rein.-con. parking garage, underground tunnel connecting garage with store, Main St. and Dallas St. **$500,000.** A. C. Finn, Bankers Mortgage Bldg., archt. Robert J. Cummins, Bankers Mortgage Bldg., engr. Reg. F. Taylor, Bankers Mortgage Bldg., mech. engr. CD 9/7.

LOW BIDDERS

Pa., Phila. — WAREHOUSE, etc. — Smith Kline & French, Inc., 105 N. 5 St., warehouse and office from Barclay White Co., 22 N. 36 St., Approx **$800,000.** Robert Montgomery Brown, 1728 Spruce St., archt. Pennell & Wilberger, 1524 Chestnut St., engrs.

CONTRACTS AWARDED

●**Ill., Decatur**—PLANT—A. E. Staley Mfg. Co., E. K. Scheiter, exec. vice pres., Decatur, general contract plant and preparatory bldg. addn., to H. K. Ferguson Co., Hanna Bldg., Cleveland, O. Approx. **$2,500,000.** Blaw-Knox Constr. Co., Chemical Plants Div., 321 Pennsylvania Ave., Pittsburgh, Pa., engrs. CD 3/29.

Ia., Creston—PLANT—Southwestern Federated Power Co-operative, Creston, Sect. 9, mechanical work at Creston Steam Plant, to Industrial Heating & Plumbing Co., St. Joseph, Mo., **$343,324.** Bids 9/6. CD 8/4.

O., Cleveland—RIVER TERMINAL—Texas Co., Box 5268, Indianapolis, Ind., river terminal, office, 1 warehouse, repairing garage and loading platform, to Gillmore-Carmichael-Olsen Co., 873 E. 55 St., **$400,000.** Est. $375,000. Bids 8/15, awarded 9/9. R. E. Satterfield, 2501 W. 3 St., company engr. CD 8/3.

●**Pa., Phila.** — PLANT — Supplee-Wills-Jones Milk Co., 1523 N. 26 St., 2 story, 250x478 ft., brick dairy plant, to McCloskey & Co., 1620 W. Thompson St., **$2,500,000.** Bids 9/7. CD 8/18.

●**S. C., Kollock**—MILL—J. P. Stevens & Co., c/o J. E. Sirrine Co., archt., Greenville, textile mill, to Daniel Constr Co., Greenville. Approx. **$1,000,000.** CD 4/29, under LB.

Tex., Dallas — WAREHOUSE, etc. — Frank Harvey & Assoc., c/o Ind. Properties Corp., Republic Bank Bldg., warehouse and storage, in Trinity Industrial Zone, to Williams & Wagner Constr. Co., 8515 Preston Rd., Approx. **$92,000.**

Tex., Dallas—WAREHOUSE—National Industries, Inc., Republic Bank Bldg., 130,000 sq. ft. steel, concrete, brick warehouse, to O'Rourke Constr. Co., 1001 W. Commerce St. Approx. **$650,000.**

N. B., Saint John—PLANT, etc.— International Harvester Co. of Canada, Ltd., Sherman Ave. W., Hamilton, 1 story, 182x312 ft., rein.-con., brick plant, office and showroom. Thorne Ave., to Richard & B. A. Ryan, Ltd., 1808 William St., Montreal, Que. Approx. **$500,000.** Bids 12/3. CD 11/23.

UNCLASSIFIED

BIDS ASKED

October 10

●**Pa., Johnstown** — MEMORIAL ARENA — Hunter & Caldwell & Campbell, archts., 3601 5 Ave., Altoona, memorial arena from Cambria County War Memorial Assoc., Howard Stull, pres. Bd. Directors, 1106-1st Natl. Bank Bldg. $1,000,000.

October 11

N. Y., New York — RECREATION CENTER —Dpt. Parks, Arsenal Bldg., Central Park 64 St. and 5 Ave., Zone 21, general contract, heating and ventilating, plumbing and electrical work for recreation center in St. Marys Park, St. Ann's Ave. and St. Mary's St., Bronx Boro, Contr. X-45-147-A. Plans deposit $20. Extended date. CD 8/31.

October 13

N. C., Charlotte—FIRE ALARM SYSTEM—City, City Hall, 600 E. Trade St., reconditioning fire alarm sys. $200,000. CD 6/17.

October 14

New York—STATION and TUNNEL LIGHTING EQUIP.—Bd. Transportation, 250 Hudson St., New York, Zone 13, furnishing, installing station and tunnel lighting equip. for Line D-Hillside Ave. Exten., from 178 St. to 184 Pl., Queens Boro. CD 8/31/45.

Manitoba—HEAD GATES and HOISTS—Hon. J. S. MacDiarmid, Dpt. Mines & National Resources, Winnipeg, supply, erection, testing 18 head gates and hoists, appurtenances, Winnipeg River Power Development, Pine Falls, for Province of Manitoba, Winnipeg. CD 1/17/45.

October 18

Tex., Galveston—LIGHTING SYSTEM—University of Texas Medical Branch, c/o Bd. Regents, Galveston, reconstructing, exten. electric lighting sys. in hospital zones. $50,000. Freese, Nichols & Turner, 2111 National Standard Bldg., Houston, consult. engrs.

SOON LETS CONTRACT

Calif., San Bernardino — EXHIBIT BUILDING — National Orange Show, San Bernardino, soon lets contract 172x216 ft. steel flower exhibit bldg. $159,000. W. F. Mellin, 671 D St., and H. H. Harris 2311 Fellowship Parkway, Los Angeles, archts. CD 9/23.

LOW BIDDERS

British Columbia—RIGHT-OF-WAY CLEARING—Pacific Great Eastern Ry. Co., Parliament Bldgs., Victoria, Sept. 23, clearing and grading 17 mi. railway exten., south from Prince George, from Jamieson Constr. Co., Ltd., 904 E. Hastings St., Vancouver, **$61,902.** CD 9/20.

CONTRACTS AWARDED

Ind., Portland — DRIVE-IN THEATRE — Portland Theatre Realty Co., Ralph G. Hines, c/o Hines Theatre, Portland, drive-in theatre, 9 acre tract, Hy. 67, 2 mi. southwest of here, separate contracts. Approx. **$100,000.**

La., New Orleans — WHARF — Port of New Orleans, 2 Canal St., reconstruction, exten., St. Maurice Ave. wharf, Reg. SD 4981, to R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., **$141,143.** Bids 8/23, Awarded 9/16. CD 8/12.

Missouri — RURAL DISTRIBUTION LINES — Citizens Electric Corp., Ste. Genevieve, 241.22 mi. rural distr. lines, Ste. Genevieve Co. to W. S. Young Co., Shreveport, La., **$158,050.** Drazen & Assoc., 8135 Forsyth Blvd., Clayton, St. Louis, Zone 24, consult. engrs.

Missouri — RURAL DISTRIBUTION LINES — Pemiscot-Dunklin Electric Co-operative, Inc., T. R. Cole, pres., 50 mi. tie lines, etc., Pemiscot, New Madrid and Dunklin Counties, Proj. Missouri 12M1, Dunklin, force account. Approx. **$100,000.** Rural Line Engineers, 440 S. Brentwood Blvd., Clayton, St. Louis, Zone 5, engrs. Bids 9/27. CD 9/10.

Neb., Omaha — GAS SYSTEM—Metropolitan Utilities Dist. 18 and Harney Sts., imprv. gas supply sys., incl. new lines, replacing old lines. Owner builds. **$199,315.** B. Manchester, c/o owner, gas engr. CD 8/12.

Tex., Beaumont — STREET LIGHTING — City, 215 light street lighting expans. Purchase and Hire. Approx. **$50,000.** CD 9/23.

Tex., Irving — GOLF COURSE, etc. — Highland Hills Country Club, c/o Charles Schulze, Irving, golf course. Approx. **$65,000;** swimming pool, Approx. **$55,000,** own forces.

PROPOSED PROJECTS

WATER SUPPLY

●**Calif., San Francisco**—Pub. Utilities Comn., City Hall, **$4,000,000** bond election Nov. 8, reservoir on Cherry Creek tributary of Tuolumne River.

SEWERS, WASTE DISPOSAL

●**Ill., East St. Louis**—City of East St. Louis, John T. Connors, mayor, City Hall, Main St. and Missouri Ave. $2,500,000 bond election Apr. 4, 1950, its share of cost, modernization exten. East St. Louis sewerage sys., incl. main trunk line sewer, **$3,000,000;** lateral and connecting relief sewerage sys., **$6,000,000.** East Side Levee & Sanitary Dist., Dan Foley pres., 628 A. Missouri Ave., will issue $3,000,000 bonds to finance trunk line sewer if and when city bond issue is passed. Horner & Shifrin, Shell Bldg., 1221 Locust St., St. Louis, Zone 3, Mo., consult. engrs. CD 8/12.

●**O., Euclid**—City, City Hall, 120 in. interceptor storm sewer from west side to east side of city would insect Lakeland Blvd. and Tungsten Rd. **$1,000,000.** Havens & Emerson, Leader Bldg., Cleveland, consult. engrs. CD 11/22/48.

●**Ont., Toronto**—Municipality, refuse disposal plant, Keating Ave., **$1,000,000.** Murray Stewart, city engr. CD 8/10/44.

BRIDGES

●**O., Niles**—City, City Hall, N. Main St., $665,000 bond election Nov. 8, N. Main St. grade elimination proj. **$2,400,000.** CD 1/28/49.

O., Philo—Comrs. Muskingum Co. Courthouse, Zanesville, **$2,100,000,** bond election Nov. 8, bridge across Muskingum River between Philo and Duncan Falls, repair 4 other bridges.

●**Tex., Port Isabel**—Cameron Co., Courthouse, Brownsville, causeway between Port Isabel and Padre Island, **$1,800,000;** Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York, N. Y., consult. engrs., swing barge bridge, across Intercostal Canal in vicinity of Port Isabel, **$200,000.** Alfred Tamm, Harlingen, co. engr. CD 6/16.

STREETS AND ROADS

●**Illinois**—State Hy. Dpt., Springfield.

Clark Co.—c. conc. 7.5 mi., 3 bridges, Rt. 40, **$900,000.**

Cumberland Co.—c. conc. 10.63 mi., 1 bridge, Rt. 40, **$1,330,000.**

DuPage and Will Counties—c. conc. 7.73 mi., 3 highway grade separations and acquisition of rights-of-way on Rt. 66, **$2,195,000.**

Kankakee and Iroquois Counties—c. conc. 7.5 mi., 2 bridges Rt. 45, **$540,000.**

Lake Co.—c. conc. 1.1 mi. 2 highway grade separations, Rt. 12, **$734,000.**

Livingston Co.—c. conc. 6.5 mi., 2 bridges, Rt. 24, **$640,000.**

Macon and Christian Counties — c. conc. wid'n. 22.69 mi. Rt. 48, **$990,000.**

McLean and Woodford Counties—c. conc. 8.39 mi. Rt. 24, **$886,000.**

Morgan, Scott and Pike Counties—c. conc. widn'., resurf. 16.9 mi. Rts. 36 and 54, **$675,000.**

Richland and Lawrence Counties—c. conc. 9.91 mi. Rt. 40, **$1,316,000.**

Saline and Gallatin Counties—c. conc. wid'n. 14.5 mi. Rt. 45, **$992,500.**

St. Clair Co.—resurf. 19 mi. wid'n. 1 bridge, Rt. 13, **$493,000.**

Tazewell Co.—c. conc. 8.93 mi., wid'n. resurf. Rt. 24, **$425,000.**

O., Akron—City, wid'n., resurf., laying storm sewers in E. Market St. from Adolph to Arlington Sts., 2 lanes to ¾ mi. stretch, wid'n. from 45 ft. to 64 ft. **$320,000.** CD 12/10/43.

O., Athens—Comrs. Athens Co., Athens, 2 mi. hy. to Hanley Run, **$114,000.** CD 11/6/44.

Okla., El Reno—City, resurf. 30 business blocks **$100,000.** Rex Collins, McAlester, consult. engr.

Okla., Sand Springs—City, grading, paving 40 residence blocks, **$128,000.** Fred Cobb, Sand Springs, consult. engrs.

Tex., Bryan—City, street paving, imprvs. **$500,000.** Freese & Nichols & Turner, 407 Daniger Bldg., Ft. Worth, consult engrs. CD 9/13.

Tex., Marshall—Harrison Co., Courthouse, construct road between Marshall and the Eastman Corp. proj. near Longview. **$350,000.** CD 2/21/45.

Tex., Whitney—Hill Co., Courthouse, Hillsboro, $60,000 bond election Oct. 28, constr. connecting roads in Lake Whitney Area, $120,000.

Tex., Woodsboro — Road Dist. 2, Refugio Co., Woodsboro, defeated $125,000 bonds road constr. and surf. CD 9/13.

EARTHWORK, WATERWAYS

●**Texas**—San Jacinto River Conservation & Reclamation Dist., Conroe, Sect. 1, Lake Creek Dam (flood control) $2,750,000; Sect. 2, Lake Creek channel imprvs. (flood control) $750,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

FOREIGN

Iceland, Soq — Republic of Iceland, plans electric power project and transmission line at Soq and at Laxa. $2,630,000.

LATIN AMERICA

Brazil, Rio Grande do Sol — State of Rio Grande do Sol, plans irrigation 50 hectacres of land. $3,750,000. State Irrigation Bd., Rio Grande do Sol, engr.

Mexico, Durango Mazatlan—Mexican Govt., Sria. de Cy. O. P., Mexico, D. F., plans railroad. $17,400,000.

Mexico, Mexico City—Carlos Gaul, Heliotropo, 131, Mexico, D. F., Mexico, plans animal-power plow and cultivator factory. $250,000.

Mexico, Mexico City—Maurice Roger Salle, Hamburgo, 221, Mexico, D. F., Mexico, plans woolen carpet and rug factory. $250,000.

Mexico, Mexico City—Sria. de Hacienda, Lic. Ramon Beteta, secy., Mexico, D. F., plans mint and official paper printery bldg. $1,500,000.

Mexico, Tapachula—Roberto Padilla Nervo, Apartado Postal 118, Tapachula Chiapas, plans citronela essential oil factory. $300,000.

Venezuela, El Pao—The Iron Mines of Venezuela, Caracas, plans installations for commercial iron-ore mining operations. $1,000,000.

PUBLIC BUILDINGS

Calif., Long Beach—SCHOOL—City School Dist., plans by Edward L. Mayberry, 3910 E. 3 St., Rogers Junior High School, $415,000. CD 11/18/48.

Calif., Richmond — HOSPITAL — City, City Hall, $815,000 bond election, Nov. 8, 100-bed hospital.

Del., Camden — SCHOOL — Caesar Rodney Special School Dist., Camden, Caesar Rodney School addns., alterations, $495,000

Del., Dover — SCHOOL — Delaware State Bd. Educ., Dover, vocational school $850,000.

Del., Harrington — SCHOOL — Harrington Special School Dist., Harrington, school, $647,000.

Del., Milford — SCHOOL — Milford Special School Dist., Milford, school, $797,000.

Del., Newport — SCHOOL — Newport School Dist., Newport, school addn $427,000.

Del., Seaford — SCHOOL — Seaford Del. Special School Dist., Seaford, school annex bldg. (addn.). $423,956.

●**Del., Wilmington**—SCHOOL—Alexis I. du Pont Special School Dist., Kennett Pike, Wilmington school, Kennett Pike, near here, $1,000,000.

●**Fla., Orlando** — SCHOOLS — Orange Co. Bd. Pub. Instruction, Orlando, plans by James Gamble Rogers II, Winter Park, Senior High School, $900,000; plans by L. Alex Hatton, Orlando, Holden Heights Negro School, $323,000. CD 5/9.

●†**Idaho, Arco**—TESTING REACTOR—U. S. Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash., D. C., atomic reactor testing station, near Pocatello. Blaw-Knox Co., Chemical Plant Div., Farmers Bank Bldg., Pittsburgh, Pa., engr.-archt. CD 3/24.

●**Ill., Springfield**—SCHOOLS— Bd. Educ., 200 E. Adams St., plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, high school, 2 grade schools, $5,951,933. CD 6/3.

Kan., Russell—SCHOOL—Bd. Educ., Russell, voted $400,000 bonds, 2 schools. E. M. Fuller, First National Bank Bldg., North Kansas City, Mo., archts. CD 8/25.

●**Mass., Wakefield** — HIGH SCHOOL — Town, Town Hall, plans by Adden, Parker, Clinch & Crimp, 177 State St., Boston, high school, alterations, addns. Approx. $1,000,000.

Minn., Columbia Heights—GYMNASIUM, etc. —Village, Bd. Educ., G. Miller, clk., plans by Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, gymnasium and classroom addn. to school, $500,000.

Mont., Billings—CIVIC CENTER—City, City Hall, plans by L. G. Link & Co., Billings, civic center bldg., $998,816.

●**Mont., Great Falls** — SCHOOLS — City Bd. Trustees, Great Falls, plans by A. V. McIver, Great Falls, South Side School, $900,000; West Side School, $500,000. CD 4/16/48.

Neb., Alliance — SCHOOL — Bd. Educ., Alliance, plans by Meginnis & Schaumberg, 614 Federal Securities Bldg., Lincoln, Junior High School, $500,000. CD 12/16/48.

●**N. J., Hamilton Twp. (Trenton P. O.)**—HIGH SCHOOL—Hamilton Twp. Bd. Educ., 2069 Greenwood Ave., plans by Herman L. Mack, bd. archt., Junior High School, Hamilton Ave. and Klockner Rd., $1,700,000; Decour School, $275,000, Micklewright & Mountford, 72 Ewing St., Trenton, assoc. archts. CD 2/2/48.

●**N. J., New Lisbon**—WELFARE HOME—Bd. Freeholders Burlington Co., Mount Holly, plans by Micklewright & Mountford, 73 Ewing St., Trenton, welfare home addns., alterations, $1,350,000. CD 3/9/48.

●†**N. M., Los Alamos**—PLANT—U. S. Atomic Energy Comn., c/o Contract Div., Los Alamos, electric and steam plant, incl. 1,000,000 cu. ft. rein.-con. substructure and steel superstructure main bldg., etc., Inv. No. 291-50-20. $750,000-$1,250,000.

N. C., Fayetteville — BUILDINGS — Fayetteville State Teachers College, Dr. James W. Seabrook, pres., Fayetteville, auditorium, $254,000; 3 dormitories, $379,602; library addn., $50,000; repair bldgs., $50,000; renovating Bickett Hall, $75,000.

O., Cleveland—MARKET—City, City Hall, plans by J. Ceruti, 7113 Euclid Ave., rehabilitation city owned West Side Market, at west end of Lorain-Carnegie Bridge, $519,940. CD 6/10.

●**O., Cleveland Heights**—SCHOOL—Cleveland Heights Bd. Educ., H. D. Secrest, clk., 1749 Lee Rd., school, Cedar and Warrensville Center Rd. or Cedar and Greenwood Rd. $2,750,000. CD 6/22.

O., Dover — SCHOOL — Bd. Educ., Dover, $860,000 bond election Nov. 8, 2 grade schools.

●**O., Hubbard** — HIGH SCHOOL — Bd. Educ., R. C. Reynolds, school supt., $1,000,000 bond election Nov. 8, 600 pupil high school.

O., Lisbon — SCHOOL — Bd. Educ., Lisbon, plans by Kling & Frost, 661 Wick Ave., Youngstown, 1 story school, in Kelley's Field. CD 11/15/45.

●**O., Marietta**—SCHOOLS—Bd. Educ., Marietta, 3 mill 24 year tax levy to produce $1,350,000 will be submitted at Nov. 8 election, replace elementary schools with new bldgs.

●**O., Mayfield Heights**—HIGH SCHOOL, etc.— Mayfield Heights Local School Dist., H. A. Sheetz, supt., Mayfield Heights, plans by Fulton Krinsky & Delamotte, 6014 Euclid Ave., Cleveland, five one and 2 story brick, steel high school and elementary school addns. $1,000,000. CD 2/5/48

O., Painesville — SCHOOL — Bd. Educ., $860,000 bond election Nov. 8, school building program.

O., Willard—SCHOOL—Bd. Educ., Willard, $420,000 bond election Nov. 8, 16 room grade school and repairing, expanding present school.

O., Youngstown—JAIL, etc.—Comrs. Mahoning Co., Courthouse, 10 story combination jail and office, bldg., $600,000.

Okla., Walters — POWER PLANT — City, bond election Oct. 18, power plant imprvs. $100,000.

●**Ore., Portland**—OFFICE—State Bd. Control, Capitol, Salem, plans by Dougan, Helms & Caine, Terminal Sales Bldg., 12 story state office, bounded by 4, 5, Clay and Columbia Sts. $2,500,000.

Pa., Glenolden—SCHOOL—Glenolden School Bd., Glenolden, school, $500,000.

Pa., Pittsburgh—SCHOOL—Bd. Educ., Forbes and Fellefield Aves., 2 story brick, block, tile Sunnyside School, Stanton Ave. $535,000.

●**Tex., Amarillo**—HOUSING—Amarillo Housing Auth., Amarillo, 800 low-rental housing units, $6,800,000.

●**Tex., Beaumont** — HOUSING — Beaumont Housing Auth., Beaumont, 500 low-rental housing units, $4,375,000.

●**Tex., Borger**—HOUSING—Housing Auth. of Borger, Borger, 250 low-rental housing units, $2,187,500.

●**Tex., Brownwood**—HOUSING—Housing Auth. of Brownwood, Brownwood, 300 low-rental housing units, $2,625,000.

●**Tex., El Paso**—HOUSING—El Paso Housing Auth., El Paso, 660 low-rental housing units, $5,789,000.

●**Tex., Lubbock**—HOUSING—Lubbock Housing Auth., Lubbock, 350 low-rental housing units, $3,062,500.

●**Tex., Mercedes**—HOUSING—Mercedes Housing Auth., Mercedes, 200 low-rental housing units, $1,750,000.

●**Tex., Sweetwater**—HOUSING—Housing Auth. of Sweetwater, c/o C. B. Bryant, Sweetwater, 150 low-rental housing units, $1,412,500.

●**Tex., Waco** — HOUSING — Waco Housing Auth., Waco, 550 low-rental housing units, $4,782,500.

●**Tex., Waco**—SCHOOLS—Waco Independent School Dist., Pub. School Bd., bond election Oct. 15, masonry steel high school, $1,450,000; masonry, steel Junior-Senior High School, North Side, $800,000; masonry, steel Junior-Senior High School, South Side, $800,000; masonry, steel, concrete school, $550,000; masonry, steel Intermediary School, $400,000.

●**Wash., Kennewick**—SCHOOL—School Bd., Kennewick, plans by E. W. Morison, 719 2 Ave., Seattle, 4, high school, $1,800,000.

Wash., Pasco—SCHOOL—School Bd., Pasco, school, $300,000.

●**Wash., Seattle**—DORMITORIES—University of Washington, 15 Ave. N.E. and E. 40 St., Zone 5, dormitories for 2,000 students, $10,000,000.

B. C., White Rock—HOSPITAL—White Rock Hospital Society, White Rock, plans by K. J. Sandbrook, 70-8 St., New Westminster, hospital. Approx. $525,000.

N. S., Halifax — **SCHOOLS** — Bd. School Comrs., Halifax, replacing St. Thomas Aquinas School, $250,000; razing and replacing Le Marchant School, $300,000.

Ont., Toronto — HOSPITAL — Municipality, Isolation Hospital, $975,00, Murray Stewart, city engr. CD 1/5/45.

Ont., Toronto—OFFICE—Municipality, registry office addn. $950,000, M. Stewart, city engr.

Ont., Toronto—OFFICE—Municipality, Seaton House remodeling, imprv. for Dpt. Welfare, $600,000. Toronto City Planning Bd., Toronto, engr.

Ont., Toronto — SCHOOL — York Twp. Bd. Educ., C. E. Webster, Keele and Eglinton Sts., steel, brick technical school, Coronation Sq., Keele St. and Flora Rd. Approx. $986,000.

COMMERCIAL BUILDINGS

Colo., Denver — THEATRE, etc. — Afton Amusement Co., St. Louis, Mo., plans by Fisher & Fisher, Denver National Bank Bldg., air-conditioned motion picture theatre and store, E. Colfax Ave. from Magnolia to Niagara Sts., $400,000.

D. C., Wash.—HEADQUARTERS—American Legion, 1608 K St. N.W., plans by Britsch & Munger, Nicholas Bldg., Toledo, O., and Giesecke Kuehne & Brooks, 121 E. 8 St., Austin, Tex., national headquarters, 1608 K St. N.W.

●**Ill., Chicago**—APARTMENT—Meyer J. Hatowski, Morris Greenberg & Joseph R. Shapiro, Marine Dr. between Margate and Argyle Sts., Zone 40, plans by Dubin & Dubin, 127 N. Dearborn St., Zone 2, 14 story, steel, concrete, brick, stone apartment, incl. 516 units, $5,600,000.

●**Ill., Chicago**—HOUSING—Owner, c/o Loebl, Schlossman & Bennett, archts., 333 N. Michigan Ave., 21 story, brick, reinf.-con. Lake Shore Barry Apartment, $3,000,000.

Ill., Chicago — APARTMENT — Raymond Sher, 838-56 Argyle Ave., Zone 40, plans by Carl J. Kastrop, 9 E. Huron St., Zone 10, 8 story, steel, concrete, brick apartment, incl. 88 units, $899,000.

●**Ill., Effingham**—HOSPITAL—Catholic Third Order of St. Francis, Sagamon Ave. Rd. Springfield, 6 story hospital, incl. home and chapel. $2,950,000.

●**Ill., Ingalton Station (near West Chicago)**—SEMINARY—Order of Franciscan Fathers, Assumption Province, Pulaski, Wis., seminary, near here, $2,000,000.

Ind., Fort Wayne—HOSPITAL—Clyde Cover, pres. Fort Wayne Methodist Hospital Bd., 119 W. Lewis St., hospital wing, Harrison St., $600,000. CD 3/11/43.

Ky., Lexington—HOSPITAL—Kentucky Conference of Methodist Church, c/o Walter B. Fields, Good Samaritan Hospital, 310 W. Jaime St., 4 story Good Samaritan Hospital addn., $450,000.

Ky., Owensboro — SCHOOL, etc. — Catholic Diocese of Owensboro, Owensboro, high school, athletic field and fieldhouse, $500,000.

●**Mo., St. Louis**—HOSPITAL—St. Louis University, Rev. Paul C. Reiner, S.J., pres., 221 N. Grand Blvd., Zone 3, cancer research hospital, S. Grand Blvd. and Vista Ave. Approx. $1,000,000. CD 11/9/44.

N. J., Bayside—RELIGIOUS INSTITUTION —Ozanam Hall Inc., c/o G. E. Beatty, archt., 32 Court St., Brooklyn, Zone 2, 5 story, 172x214 ft. religious institution, 201 St. and 43 Ave., $625,000.

N. Y., New York—GYMNASIUM—Mount St. Michael's Academy, 4300 Murdock Ave., New York, Zone 66, plans by James W. O'Connor, 162 E. 37 St., New York, Zone 16, 2 story gymnasium, Nereid and Murdock Aves., $700,000.

●**O., Canton**—HOSPITAL—Catholic Diocese of Youngstown, 144 W. Wood St., hospital, on 10 acre site, 28 St. and Market Ave. N., $2,250,000.

O., Cleveland—HIGH SCHOOL—Diocese of Cleveland, F. O. Hoban, bishop, N.B.C. Bldg., plans by Stickle, Kelly & Stickle, 2422 Prospect Ave., 2 story, bsmnt., brick, concrete, steel boys' high school and athletic field, E. 185 and Lakeshore Blvd., $750,000.

O., Lakewood—SHOPPING CENTER—Warren Center, Inc., National City Bank Bldg., Cleveland, 1 story, 130x450 ft., brick, colonial type shopping center, Warren Rd. toward St. Charles Ave. $700,000.

●**O., University Heights**—DORMITORIES, etc. —John Carroll University, Rev. Frederick E. Welfle, S.J., pres., University Heights, 3 story, bsmnt., men's dormitory, $713,000; similar dormitory, physics bldg., school of business bldg., student union bldg., gymnasium and swimming pool, stadium, military training quarters; power plant addn. Approx. $6,000,000.

Pa., Meadville—HOME—Erie Conference of Methodist Church, Sharon, Cribbs Home for Aged, $500,000.

●**Pa., Phila.**—BUILDING—Young Women's Christian Assn., 1800 Arch St., Stephen Girard Hotel conversion addns. and alterations to convert into Y. W. C. A. and other expans. projects. $1,500,000.

●**Pa., Pittsburgh** — OFFICE — Equitable Life Assurance Society, 393 Seventh Ave., New York 1, N. Y., "Gateway Center"; three 20 story office bldgs. on 23 acre site at junction of Alleghany and Monongahela Rivers. $50,000,000.. (Construction probably will be done by

Starrett Bros. & Eken, 63 Wall St., New York 5, N. Y., but no contract signed to date.)

●**Pa., Pittsburgh** — HOSPITAL — Passavant Hospital, Reed and Miller Sts., plans by Press C. Dowler, Century Bldg., hospital addns., alterations and nurses home. **$1,000,000.**

Pa., Upper Darby—APARTMENT, etc.—Joseph J. Rodek, Long Lane Court, plans by Morris Fruchtaum, 328 Chestnut St., Phila., apartment and garage, Long Lane and Sansom Sts. **$500,000.**

Tex., Gladewater — HOTEL — Claude Lee, Gladewater, hotel, **$500,000.**

●**Tex., Laredo**—TELEPHONE—Southwestern Bell Telephone Co., c/o G. Underwood, Laredo, telephone bldg., dial and equip. **$1,670,000.** CD 2/10.

Tex., Longview—BANK, etc.—Forest National Bank, Longview, concrete, steel, masonry bank and office, **$750,000.**

Tex., Port Lavaca—DWELLINGS—Calhoun Development Co., Port Lavaca, addnl. 40 wood, stone, brick dwellings, concrete slab fdns., adjacent Lynn Bayou near Hy 35, **$250,000;** addnl. 50 concrete block dwellings, concrete slab fdns., adjacent Point Comfort and Northern R. R. intersections at Fort Point, **$275,000.**

●**Wash., Yakima** — HOTEL — Yakima Community Hotel Corp., c/o Chamber of Commerce, Yakima, plans by Thomas Hargis, Jr., Yakima, completing skeleton hotel, **$1,000,000.** CD 4/1.

●**Ont., Sudbury**—SANATORIUM—Algoma Sanatorium Bd., Sudbury, sanatorium, Shore of Lake Ramsay, **$1,500,000.**

INDUSTRIAL BUILDINGS

Ind., Angola—SUB-STATION, etc.—Northern Indiana Public Service Co., Merle Tucker, dist. mgr., Angola, sub-station, dist. head quarters, northwest section, incl. engineering dpt., testing rooms, storage rooms, crew headquarters, lockers, service rooms, offices, 41x42 ft. and 49x50 ft. garages, transfer of transformer banks and 175 foot two-way broadcasting tower and sys. to new site, increase feed lines, from generating plant at Michigan City to Angola from 33,000 to 66,000 volts.

●**Pa., Sharpsburg** — BREWERY — Fort Pitt Brewing Co., 16 and Mary Sts., plans by Robert J. Brecker, 201 Coultee Bldg., Greensburg, 4 story brewery and misc. alterations to present plant, 18 St. **$2,000,000.**

Wash., Cashmere — PLANT, etc. —Cashmere Fruit Growers Union, Cashmere cold storage plant and warehouse **$700,000.**

Wyo., Cheyenne — SUB-STATIONS, etc. — Cheyenne Light, Fuel & Power Co., Cheyenne, sub-stations, exten. gas mains, various new equip., feeder line, re-build pole lines, new conduit, etc., **$166,890.**

UNCLASSIFIED

Minnesota—RURAL DISTRIBUTION LINES —Stearns Co-operative Electric Assn., Melrose, 343 mi. rural distr. lines, sys. imprvs., Stearns Co., **$820,000.**

Miss., Jackson—BASEBALL PARK—Baseball Stadium Assn., c/o J. Vaughey, Deposit Guarantee Bank, baseball park. **$200,000.**

N. J., Atlantic City — PIER — Associated Realties Corp., Boardwalk and Arkansas Ave., repairing Million Dollar Pier, **$250,000.**

●**Pennsylvania and Massachusetts**—GAS PIPE-LINE—Eastern Natural Gas Corp., M & M Bldg., Houston, Tex., 292 mi. natural gas pipeline from Phoenixville, Pa., to Boston, Mass. **$28,000,000.** Fish Eng. Co., M & M Bldg. Houston, Tex., consult. engr.

●**Tex., Beaumont** — COLISEUM, etc. — City, Otho Plummer, mayor, plans by Stone & Pitts, 1872 Calder St., 7,000 seating capacity steel, concrete masonry coliseum and sports arena, **$2,000,000.** R. C. Black, city engr.

●**Alta., Forestburg**—COAL MINE DEVELOPMENT—Forestburg Collieries, Forestburg, coal mining development, **$1,000,000.**

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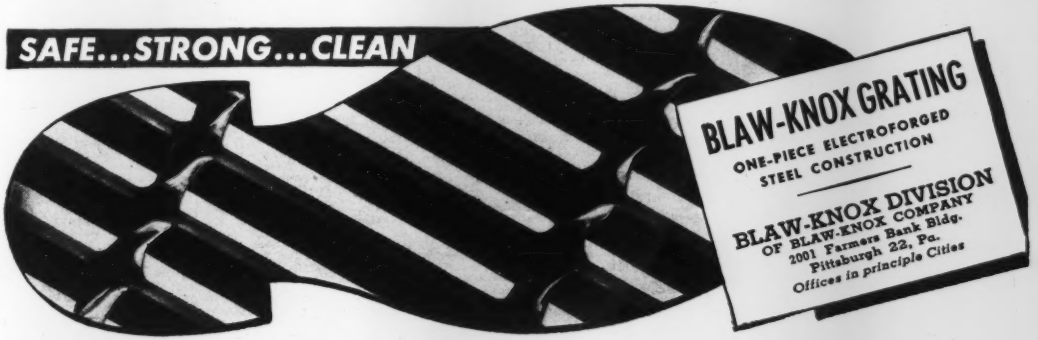

CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

October 13

Mass., Boston — Commonwealth of Massachusetts, Wm. T. Morrissey, Metropolitan Dist. Comn., 20 Somerset St., Contr. 183 City Tunnel, incl. furnishing, laying 1,200 ft. 48 and 66 in. inside diam. steel plate mortar lined concrete encased pipe, appurtenances, railroad and aqueduct crossing, connections Shaft 7-B, in Boston and Brookline. Plans deposit $10. Karl B. Kennison, 20 Somerset St., engr. CD 8/12/44.

October 14

Pa., Smithton—Smithton Boro, Smithton, standpipe, fdns., watermains, appurtenances Contr. 1 steel standpipe; Contr. 2, standpipe fdns. and filter plant alterations, Contr. 3, watermains. Plans deposit $15. The Chester Engineers, 210 East Park Way, Pittsburgh, Zone 12, engrs.

October 17

Md., Towson—Comrs. Baltimore Co., Court House, furnishing, erecting 300,000 gal. elevated steel water tank, tower, appurtenances, Contr. 172-W. Plans deposit $5. Wm. F. Neale, Court House, ch. engr.

October 18

Ala., Gadsden — City, filtration plant addn. Plans deposit $25. Wiedman & Singleton, C & S National Bank Bldg., Atlanta, engrs.

Ky., Louisville—Louisville Water Co., 3 St., concrete, steel, electric pump. unit, $50,000. Plans deposit $5. Alvord, Burdick & Howson, 20 N. Wacker Dr., Chicago, Zone 6, Ill., engrs.

LOW BIDDERS

Ind., Milan—Town Bd., rejected bids Sept. 12, filtration plant, Div. 1. Will re-advertise. CD 8/23.

Mass., Billerica—Town, Bd. P. Wks., Town Hall, Sept. 16, concrete standpipe foundation and watermain extens., from Cannavino & Shea, P. O. Box 3, Fitchburg, **$46,193.** CD 9/16.

Tex., Gilmer—City, Sept. 22, Contr. A, drilling, developing deep water supply well, from Texas Water Wells, 951 Mc Carty St., Houston, **$19,254,** materials by owners, **$10,000** **Contr. B, 500,000 gal. rein.-con. ground water storage tank and 2 sewage lift stations, from O. B. Cook, Longview, **$51,127,** est. $100,000***Contr. C, 6-to 14-in. c.i. water pipelines from Lancaster & Love, 3328 S. Beckley St., Dallas, **$66,046,** est. $50,000. CD 9/9.

Tex., Lubbock—City, Sept. 22, 39,000 lin. ft. 12 to 24-in. water distr. mains, appurtenances, from Cullum & Hodgson, 1003½ 13 St., **$195,191.** Est. $70,000. CD 8/29.

Va., Blacksburg—Town, Sept. 20, distr. reservoir, from Preload Corp., 211 E. 37 St., New York, N. Y., **$49,032.** CD 9/12.

CONTRACTS AWARDED

Ia., Cedar Falls—City, City Hall, Sept. 3, Title A, water towers, to Pittsburgh Des Moines Steel Co., 1015 Tuttle St., Des Moines, **$102,000.** Bids 8/29. CD 8/11.

Minn., Marshall—City, H. N. Harmon, clk., City Hall, furnish, install water treatment plant equip. municipal power plant, to J. McClure Kelley Co., 2601 Stevens Ave., Minneapolis, **$28,624.** R. D. Thomas & Assoc., 400 Metropolitan Life Bldg., Minneapolis, engrs. Bids 9/13.

S. D., Pierre, City, City Hall, 1¼ m.g. reservoir, to Bonesteel & Hyde, Inc., Rapid City, **$68,946.** Bids 9/20. CD 9/8.

Tex., Cleveland — City, addnl. waterlines force account, **$32,000.** CD 7/19.

Tex., Nederland—City, water plant unit, own forces, **$56,000.** Steinman & Golemon, Beaumont, engrs. CD 7/17/47.

Tex., Snyder—City, addnl. WW imprvs., own forces. **$30,000.** Hasie & Green Eng. Co., Tahoka, engr.

W. Va., West Liberty—Bd. Control, Capitol Bldg., Charleston, repairing water and treatment plants, incl. pumps, watermains, 2,400 ft. 8 in. c.i. pipe, 1,338 ft. 6 and 8 in. concrete pipe, 250 ft. 18 in. concrete storm sewer pipe, filters, pumps, to Engstrom & Wynn, 1117 Chapline St., Wheeling, **$120,550.** A. R. Todd, Warwood Water Works, Wheeling, engr.

SEWERS, WASTE DISPOSAL

BIDS ASKED

October 11

Ind., Jasper—Bd. P. Wks., **A. J. Sermersheimer**, clk., City Hall, 7,500 ft. 8 and 10 in. sanitary sewer $55,000. C. J. Heim, 436 W. 8 St., city engr.

October 17

Calif., Bishop—City, sewage treatment and disposal plant and outfall sewer, primary clarifier, sludge digester, drying beds, $63,000. Ludwig Bros., 6-8 S. Fair Oaks St., Pasadena, engrs.

October 19

Calif., San Francisco—Dpt. P. Wks., City Hall, influent and effluent sewers at North Point Sewage Treatment Plant. Approx $50,000. Plans deposit $25. Ralph Wadsworth, City Hall, city engr. CD 3/23/48.

N. J., Hawthorne—Comrs. Hawthorne Boro, Lincoln School, Hawthorne Ave., 1,700 ft. 24 in. sanitary sewer. Plans deposit $15. Clyde Potts, 30 Church St., New York, N. Y., consult. engr; adv. ENR 10/6. CD 4/30/46.

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. 12, roads, drains, landscaping for 26th Ward Sewage Treatment Works. Plans deposit $10. CD 8/22/45.

October 25

N. Y., Croton-on-Hudson—At office Albert Rozell, mayor, and Bd. Trustee, Municipal Bldg., Van Wyck St., Contr. 1, sewerage sys.; Contr. III, subaqueous outfall sewer. Plans deposit $15. Bowe, Albertson & Assoc., 110 William St., New York, engrs. CD 2/3/44.

LOW BIDDERS

Calif., San Clemente—City, Sept. 21, sewage treatment plant, from Charles MacClosky Co., 628 Heliotrope Dr., Los Angeles, **$159,423.** CD 8/29.

Ind., Charlestown—Pub. Housing Auth., 201 N. Wells St., Chicago, Ill., rejected bids Sept. 7, sewage treatment plant Charlestown Housing, Pleasant Ridge. Will readvertise. Couch & Kulin, 312 E. Washington St., Indianapolis, engrs. CD 8/23.

Mass., Boston—Commonwealth of Massachusetts, Metropolitan Dist. Comn., 20 Somerset St., Sept. 22, sewage treatment plant constr., portion Nut Island, Quincy, from Thomas O'Connor & Co., 238 Main St., Cambridge, **$812,038.** CD 9/14.

Tex., Jacksboro—City, Sept. 2, sewer treatment plant, lift station, force main and gravity outfall lines, from H. D. Gillis & Co., 305 Templeton Dr., Forth Worth, **$84,982.** CD 8/26

CONTRACTS AWARDED

Ind., Sheridan—Town Bd., sewage treatment plant and sewerage sys., to Ed McCarthy & Son, 2305 Clifton Ave., Cincinnati, O., **$281,000.** Est. $279,000. Bids 8/29, awarded 9/23, CD 8/15.

Tex., Nederland—City, sanitary sewers, own forces. **$70,000.** Steinbaum & Golemon, Beaumont, engrs.

Tex., Snyder—City, addnl. sanitary sewers, own forces. **$55,000.** Hasie & Green Eng. Co., Tahoka, engr.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

October 10	**Wisconsin**
Connecticut	**October 19**
October 12	**Texas**
Massachusetts	**November 17**
October 18	**Montana**
Texas	

October 20

Ind., Fort Wayne—Bd. Comrs. Allen Co., F. C. Wissman, aud., Court House, rein.-con. bridge over St. Marys River, $100,000. Darling & Darling, 414 Transfer Bldg., engrs. CD 9/20.

November 10

O., Cleveland—Wheeling & Lake Erie Ry. Co., H. F. Whitmore, ch. engr., Public Square Bldg., reconstruct substructure and superstructure Bridge No. 2.22, single track structure, consisting 46 ft. deck plate girder, west approach span, two 40 ft. tower spans, 234 ft. vertical lift span and 84 ft. thru plate girder east approach span over Cuyahoga River. Plans deposit $10. CD 5/2.

LOW BIDDERS

North Carolina—State Hy. & P. Wks. Comn., Raleigh, Sept. 27, structures U.S. 74, Bradley Creek Bridge between Wilmington and Wrightsville Beach, Proj. 3546, New Hanover Co., from Costal Constr. Co., Box 1401, Wilmington, **$90,468,** est. $75,000-$100,000; structures N.C. 41, from Bladen-Sampson line to Harrells Store Proj. 2760, Sampson Co., from F. A. Triplett, Inc., Box 297, Chester, S. C., **$95,728** est. $100,000-$125,000. CD 9/16, 9/19.

Pa., Pittsburgh—Allegheny Co. County Bldg., Contr. 8, Whitaker approach and abutment, Rankin Bridge over Monongahela River, from Ben Constr. Co., Hargrove St., Pittsburgh, **$886,720.** Est. $1,000,000. CD 12/15/43.

CONTRACTS AWARDED

Montana—State Hy. Dpt., Helena, 370-1 ft. steel concrete overpass, grade, grav. 0.468 mi. approaches, Ennis-Sappington Rd., Gallatin Co., to Schye & Sullivan, White Sulphur Springs, **$173,748;** 256 ft. steel, concrete bridge, 50 ft. timber bridge, Birch Creek-Browning Rd., Glacier Co., to Union Constr. Co., Missoula, **$121,581.** Bids 9/22. CD 8/10.

●Virginia—State Hy. Dpt., Richmond, substructure for bridge over York River at Yorktown, York and Gloucester Counties, to Massman Constr. Co., 71 By-Pass St., and Kansas City Bridge Co., R. M. A. Bldg., both Kansas City, Mo., **$1,690,232;** superstructure double-leaf swing span at Yorktown, to Virginia Bridge Co., 821 Madison Ave., N. E., Roanoke, **$2,424,711.** Bids 9/1. CD 9/2, under LB.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

October 10	**October 19**
Connecticut	**California**
New Jersey	**Texas**
October 12	**October 20**
Maine	**California**
October 14	**New Jersey**
Minnesota	**November 17**
October 18	**Montana**
Texas	

October 10

Mass., Boston—City, P. Wks. Dpt., City Hall Annex, sheet asph. paving, Washington St., Roxbury, Approx. $50,000. Plans deposit $2.

N. Y., Brooklyn—At office Chief Engineer Port of New York, Auth., 111 8th Ave., New York, Zone 11, Halleck Street paving, driveway and fencing, Contr. GT-16, Port Authority Grain Terminal. Plans deposit $10.

After October 11

●Ala., Mobile—Mobile Co. Bd. Revenue, Mobile, imprv. 10 mi. Hamilton Blvd. and Theodore-Dawes Rd. from Cedar Point Rd. to Three-Notch Kroner Rd.; 5 mi. Azalea Rd.-McGregor Ave. from Hy. 90 to Old Shell Rd.; 2.6 mi. Demotropolis Rd. from Hy. 90 to Cottage Hill Rd., 3.6 mi. Cottage Hill Rd. end of existing pavement to Dawes Rd.; 0.8 mi. Baker Rd. from Craft Hy. 2 mi. westward and Cox's Beach Rd. from Craft Hy. to Cox's Beach Rd. $4,500,000. Donald Smith, co. engr.

LOW BIDDERS

Calif., Glendale — City, Sept. 22, paving Sonora Ave. and other streets, from Griffith Co., 1460 S. Broadway, Los Angeles, **$55,587.** CD 9/8.

†Idaho—Bureau P. Rds., General Services Admin., 609½ Bannock St., Boise, Sept. 21, clearing, grubbing, grading draining 4.637 mi. Ketchum-Clayton Hy. Proj. 26-A5, 12, Blaine Co., from T. Manfrom, 208 N. Owyhee St., Boise, **$368,184.** CD 9/13.

Massachusetts — Commonwealth of Massachusetts, Dpt. P. Wks., 100 Nashua St., Boston, Sept. 16, hy., Beacon St., Brookline, from Charles Capone Co., 44 Wellsmere Rd., Roslindale, **$74,671.** CD 9/9.

Mass., Royalston — Comrs. Court House, Worcester, Sept. 20, hy. and bridge work, Warwick Rd., from Rome Constr. Co., Main St., Holden, **$61,669.**

Montana—State Hy. Dpt., Helena, rejected bids Sept. 22, grading, drainage structures 7.173 mi., one 25 ft. and one 75 ft. treated timber bridge, Ralston-Anaconda Rd., Deer Lodge Co., Lib. **$73,421.** CD 8/10.

North Carolina—State Hy. & P. Wks. Comn., Raleigh, Sept. 27, from Grannis & Sloan, Inc., Fayetteville, traffic bound macad., bit. surf. 4.56 mi. N. C. 902 from point on N. C. 902, 2 mi. south of Bennett, east to Harpers Cross Roads and a curve 3.3 mi. east of Harpers Cross Roads, Proj. 4006, Betterment Sect. 6-6-50-134, Chatham Co., **$85,535** est. $75,000-$100,000***from Wm. F. Bowe Co., 540 Reynolds St., Augusta, Ga., c. conc. 1.54 mi. U. S. 19 and 23, from approx. 1.4 mi. northeast of Enka to point in Asheville, Proj. 9085, Buncombe Co., **$124,831** est. $125,000-$150,000*** from Zeigler-Cline Constr. Co., Box 386, Fayetteville, sand asph. base, surf. course 12.6 mi. from N. C. 70, 3.5 mi. south of Beaufort towards Merriman, Betterment Sect. 2-9-16-202, Carteret Co., **$107,444** est. $125,000-$150,000.

from Barrus Constr. Co., Box 561, Kinston, STBC and sand asph. surf. 8.34 mi. three sects. county roads, Betterment Sect. 2-9-21-201; 4-7-39-19, Lenoir and Wayne Counties, **$58,725** est. $50,000-$75,000; subgrade reinforced and sand asph. surf. 6 mi. from end of paved street in Cove City, northeast 6 mi. to N. C. 55, southeast of Fort Barnwell, Betterment Sect. 2-9-17-201, Craven Co., **$54,812** est. $50,000-$75,000; STBC, and sand asph. surf. 7.73 mi. from point on U. S. 70 southeast of LaGrange, northeast and southeast to point on county road 3 mi. southeast of Institute, Proj. 2-402, Lenoir Co., **$63,580** est. $50,000-$75,000***from Ballenger Paving Co., Box 1046, Greenville, S. C., sand asph. surf. 18.95 mi. 25 ft. grading, remove existing railroad in Hot Springs to junction of N. C. 208, from Junction N. C. 208 to Marshall city limits, Old Weaverville Rd. from Woodfin to New Bridge, Betterment Sect. 10-6-96-141; 10-6-88-151; 10-7-88-29; 5900-1026, Madison and Buncombe Counties, **$69,603** est. $75,000-$100,000.

from Brown Paving Co., Box 484, Lexington, bit. conc. 24.7 mi. county roads and streets, Betterment Sect. 6-9-51-201; 5900-656; 5900-627, Davidson Co., **$110,562** est. $100,000-$125,000***from F. D. Cline Constr. Co., Box 349, Raleigh, conc. binder and surf. course 14.3 mi. U. S. 1, from end of 22 ft. concrete pavement northeast to Deep River Bridge, from Deep River Bridge to Chatham-Wake Co. line, Betterment Sect. 6-6-50-132; 6-6-54-119, Chatham and Lee Counties **$191,657** est. $200,000-$225,000***from J. F. Cleckley & Co., Orangeburg, S. C., STBC and bit. surf. tr. 5.96 mi. N. C. 581 from U. S. Route 301 south to N. C. Route 222, a point 5 mi. west of Fremont, Proj. 1987, Wilson and Wayne Counties, **$67,023** est. $50,000-$75,000. CD 9/16, 9/19 and 9/21.

North Carolina—State Hy. & P. Wks. Comn., Raleigh, Sept. 27, STBC, bit. surf. tr. or bit. c. conc. surf. 9 mi. from Lincoln-Catawba

Co. line to beginning of surf. tr. south of Catawba. Proj. 9-200. Catawba Co., from Gilbert Eng. Co., Statesville, **$58,784** est. $50,000-$75,000***traffic bound macad. 262 mi. six sects. county roads, Betterment Sect. 7-9-65-201, Stanley Co., from Nello L. Teer, Durham, **$213,192** est. $200,000-$225,000***traffic bound macad., bit. surf. tr. or bit. c. conc. 20.5 mi. 11 sects. county roads, Betterment Sect. 7-9-61-201, Mecklenburg Co., Proposals 1 and 3, from Nello L. Teer, Durham, **$80,434** and **$166,721** respectively, Proposal 2, from Blythe Bros. Co., 2911 Hutchinson Ave., Charlotte, **$73,571,** est. $175,000-$200,000***traffic bound macad., bit. surf. tr. or bit. c. conc. 24.5 mi. eight sects county roads, Betterment Sect. 7-9-61-202, Mecklenburg Co., Proposals 1 and 3, from Nello L. Teer, Durham, **$116,107** and **$213,192** respectively, Proposal 3, from Blythe Bros. Co., 2911 Hutchinson Ave., Charlotte, **$82,430** est. $225,000-$250,000***traffic bound macad., bit. surf. tr. or sand asph. surf. course 18.4 mi. four sects county roads, Betterment Sect. 7-9-66-201, Union Co., Proposal 1, from Dickerson, Inc., Monroe, **$61,417,** Proposals 2 and 3 from Propst Constr. Co., Concord, **$69,000** and **$145,090** respectively est. $150,000-$175,000***traffic bound macad., bit. surf. tr. or sand asph. surf. 12.1 mi. Lands Ford Rd. from Bulah School to end of present pavement, Betterment Sect. 7-9-66-202, Union Co., Proposals 1 and 2 from Dickerson, Inc., Monroe, **$56,100** and **$48,000** respectively, Proposal 3, from J. F. Cleckley & Co., Orangeburg, S. C., **$118,600** est. $125,000-$150,000. CD 9/16, 9/19, 9/21.

O., South Euclid—City, 13429 Green Rd., paving curbing, bit. resurf, Eastway Rd., from O'Neil Road Constr. Co., 3437 Trumble Ave., Cleveland, **$64,000.** F. A. Pease Eng. Co., 2063 E. 4 St., Cleveland, city engr.

CONTRACTS AWARDED

Calif., San Diego—City, Civic Center Bldg., imprv. 43 St. and portion National Ave., to V. R. Dennis Constr. Co., Box F, Hillcrest Station, San Diego, **$66,434.** Bids 9/13, awarded 9/20. CD 12/6/44.

Missouri—State Hy. Dpt., Jefferson City, grading, c. conc. 0.92 mi. from Rt. 14, south to West Plains, Rt. 63 Proj. F 51 (10) B, Howell Co., to O'Dell & Riney Constr. Co., Hannibal, **$70,055.** Bids 8/26, awarded 9/22. CD 9/2, under LB.

●**Montana**—State Hy. Dpt., Helena, to Northwestern Eng. Co., Rapid City, S. D., surf. 24.01 mi. Terry-Glendive Rd., Prairie and Dawson Counties, **$572,006***to Staunton & Powell, Great Falls, grav. 5.577 mi. Virginia City-Ennis Rd., Madison Co., **$117,765;** grav. surf., c. conc. 14.277 mi. Glasgow-West Rd., Valley Co., **$214,357;** grading surf., small drainage structures, 6.077 mi. Stanford-Geraldine Rd., Choteau Co., **$49,593***to S. Birch & Sons Constr. Co., Great Falls, grading small drainage structures 8.497 mi. Stearns-Hogan School section Rogers Pass-Simms Rd., Lewis and Clark Co., **$232,851***to Billings Constr. Co., Billings, grav., oil and drain facilities 2.305 mi. First Ave., south in Billings, Yellowstone Co., **$157,034***to Heald Constr. Co. and Christler Bros., Cody, Wyo., grav. surf., 4.401 mi. Red Lodge-Belfrey Rd., Carbon Co., **$128,916***to Naranche & Konda, Butte, grading, drainage structures 6.758 mi. Drummond-Helmville Rd., Powell Co., **$58,051***to Union Constr. Co., Missoula, grav. surf., treat. and small drainage structures 7.132 mi. Polson Kalispell (East Shore) Rd., Lake Co., **$65,493***to Riggin-Nelson Constr. Co., Harlem, grading, small drainage structures 8.306 mi. Terry-Brockway Rd., Prairie Co. **$56,997.** Grand total $1,653,123. CD 8/10.

O., Cleveland Heights—Comrs. Cuyahoga Co. Frank Husak, clk., Lakeside and Ontario Sts., grading, drainage, b. conc. etc., resurf. W. 49 St. to Velotta Constr. Co., 4614 Prospect Ave., **$75,100.** Est. $76,100. Awarded 9/20. CD 9/1.

Pennsylvania—State Hy. Dpt., Harrisburg, bit. surf., c. conc. base and crushed aggregate base, surf. bridge floors, incl. exten., 5 structures with bit. surf. 67,120 ft. L. R. 218 (2R), T. R. 208 from village of Barkleyville to point 2.21 mi. from Emlenton, Venango Co., to John B. Schultz Contg. Co., Inc., 316 Crestwood Ave., Buffalo 16, N. Y., **$725,961.** Bids 8/8. CD 9/14, under LB.

Tex., Nederland—City, asph. paving. Owner builds. **$78,000.** CD 2/4/48.

Tex., Snyder—City, addnl. street constr. and asph. paving, own forces. Approx. **$50,000.** Hasie & Green Eng. Co., Tahoka, engr.

Wash., Moses Lake—City, City Hall, 37,000 sq. ft. sidewalks, 135,000 lin. ft. curbs and gutters, to Geo. V. Nolte & Co., 3048 Marine Dr., Bellingham, **$97,440.** Bids 9/16. CD 8/15.

EARTHWORK, WATERWAYS

BIDS ASKED
About October 11

†Missouri—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis, Zone 1, bank protection Mississippi River, incl. approx. 1,200 lin. ft. on west bank of river, Kaskaskia Island, Mile 112 above mouth of Ohio River.

LOW BIDDERS

Arkansas — Arkansas Game & Fish Comn., Little Rock, rejected bids Sept. 19, earth dam and outlet control structure for public duck hunting area in Jefferson and Arkansas Counties. CD 9/1.

†Kentucky—U. S. Eng., P. O. Box 97, Memphis, Zone 1, Tenn., rejected bids Aug. 31, tri-

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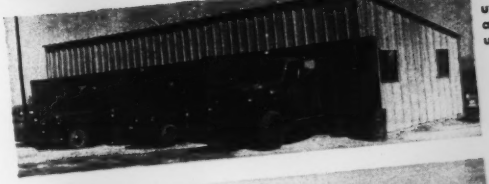
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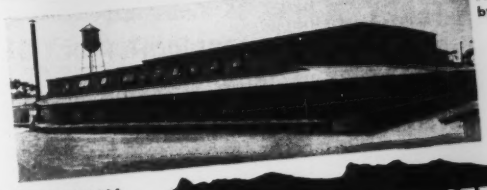
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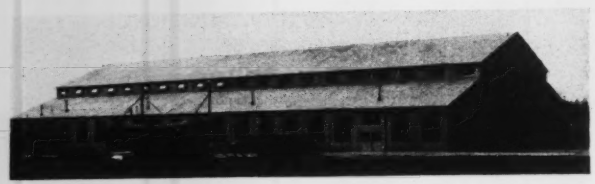

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angular frame retards in Mississippi River at Island No. 9 Fulton Co., Mile 913 AHP Serial No. CIVENG-40-041-50-13. CD 9/12.

†**Mississippi**—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., received no bids Sept. 13, dredging Biloxi Harbor, Serial No. CIVENG-01-076-50-18. CD 8/31.

†**Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, foundation cutoff test, Belton Dam and reservoir proj. incl. 30,000 cu. yd. excav., Inv. No. CIVENG-41-243-50-45, from Russ Mitchell, Inc., 5304 Old Spanish Trail Rd., Houston, **$53,803.** Est. $50,000. CD 9/21, under LB.

CONTRACTS AWARDED

†**Florida**—U. S. Eng., P. O. Box 4960, Jacksonville, soil-cement stabilization and emergency flood control work, sections of Lake Okeechobee Levee in Levee Dists. 2 and 4, Lake Okeechobee Area, Inv. No. CIVENG-08-123-50-8, to R. H. Wright & Son, Ft. Lauderdale, **$43,022.** Bids 9/19.

†**Louisiana** — U. S. Eng., foot Prytania St., New Orleans, approx. 833,000 cu. yd. semi-compacted levee embankment relocating approx. 15,000 lin. ft. highway, Avoyelles Parish, Serial No. Eng. 16-047-50-22, to C. W. Vollmer & Co., Inc., Houston, Tex., **$207,715.** Bids 8/18, awarded 9/9. CD 8/12.

†**Maine**—U. S. Eng., Army Base, Boston, Zone 10, Mass., maintenance dredging Kennebunk River, Serial No. CIVENG-19-016-50-11, to Bay State Dredging & Contg. Co., 62 Condor St., East Boston, Mass., **$50,540.** Bids 9/7. CD 8/29.

Miss., Yazoo City—Mississippi Chemical Corp., c/o contractor, site imprvs., incl. levee work, railroad embankment, etc., to Hyde Constr. Co., Hy. 80 W., Jackson. Approx. **$50,000.**

†**Nebraska** — U. S. Eng., 1709 Jackson St., Omaha, dike repairs, Serial No. CIVENG-25-066-50-5, to Connor-Stavely Constr. Co., 1805 Grand Ave., Kansas City, Mo., **$297,782.** Bids 8/11. CD 8/3.

AIRPORTS AND AIRBASES

BIDS ASKED

October 10

N. Y., Jackson Heights—FILL LAYER—At office Chief Engineer, Port of New York Auth., 11 8th Ave., New York Zone, Zone 11, furnishing, placing layer of fill on marginal dike at LaGuardia Airport, Contr. LGA-26. Plans deposit $25.

LOW BIDDERS

N. Y., Idlewild—FIRE PUMPING STATION—Port of New York Auth., 111 8 Ave., New York, Zone 11, Sept. 27, Firepumping Station, NYA-99, from Green Constr. Co., 274 Madison Ave., New York, **$317,050.** CD 4/27/44.

CONTRACTS AWARDED

Fla., St. Petersburg—AIRPORT IMPRVS—Pinellas Co. International Airport, St. Petersburg, airport imprvs., repairs, own forces. Approx. **$50,000.** CD 3/26/47.

N. Y., Idlewild—TAXIWAYS, etc.—Port of New York Auth., 111 8 Ave., New York, Zone 11, paving taxiways and aprons for Hangars 3, 4, and 5 NYA-24, to MacAsphalt Constr. Co., 33-15 Lawrence St., Flushing, **$822,123.** Bids 9/15. CD 9/1.

LATIN AMERICA

Mexico, Tampico, Ciudad Madero—Mexican Govt., Sria. de R. H. Balders 94, Mexico, D. F., receiving bids October 31, water purifying plant. Plans deposit $23. CD 8/5.

PUBLIC BUILDINGS

BIDS ASKED

October 10

Conn., Bristol—HOUSING—City, Fred O. Zurrell, chm. Housing Auth., Bristol, 80 family units 40 duplex bldgs., Proj. MR-21, Cambridge Park Development. $700,000. Plans deposit $50. Russell F. Hills, 173 Parkes St., Hartford, archt. CD 2/25.

October 13

Mass., South Peabody—HOUSING—City of Peabody Housing Auth., Peabody, 2 story, bsmnt., 68 unit housing. Approx. $700,000. Plans deposit $50. Kennedy & Smith, 687 Boylston St., Boston, archts. CD 7/25.

October 14

Mass., Newburyport—HOUSING — City of Newburyport Housing Auth., veterans housing, 2 story, bsmnt., 2 and 4 family residences. Approx. $375,000. Plans deposit $100. Drummey-Duffill, Inc., 80 Boylston St., Boston, archt. CD 3/9.

About October 15

N. C., Greensboro—DORMITORIES—Agricultural & Technical College, F. D. Bluford, pres., Greensboro, 3 story 1,800,000 cu. ft. men's dormitory. Plans deposit $50 general, $25 mechanical; 320,000 cu. ft. women's dormitory. Plans deposit $25 general, $10 mechanical. McMinn & Norfleet & Albert S. Woodruff, Assoc., Greensboro, archts. CD 10/2/47.

LOW BIDDERS

Ga., Milledgeville—HOSPITAL—State Welfare Dpt., State Office Bldg., Atlanta, Sept. 27, hospital addn. at State Hospital from A. R. Briggs Constr. Co., Macon, **$490,000.** CD 9/20.

●**Mass., Holyoke**—SOLDIERS HOME—Commonwealth of Mass., Dpt., Admin. & Finance, State House, Boston, Sept. 23, soldiers home,

Cherry Hill, from M. Slotnik Corp., 333 Washington St., Boston. **$1,979,333.** CD 9/15.

●**Mass., Medford**—HOUSING—City of Medford Housing Auth., City Hall, Sept. 23, veterans housing, Riverside Ave., from G. L. Rugo & Sons, Inc., 80 Boylston St., Boston, **$1,394,000.** CD 9/14.

Mass., Stoneham — HOUSING — Town of Stoneham Housing Auth., Town Hall, Sept. 21, Veterans Housing Proj. 200-1, Calmer St., from Platt Constr. Co. Inc., 99 First St., Cambridge, **$439,934.** CD 9/1.

Miss., Cleveland—PLANT—City, City Hall, mfg. plant, for Baxter Laboratories, from M. T. Reed Constr. Co., 162 Millsaps Ave., Jackson, **$215,700.** CD 8/23.

Tex., Houston — SCHOOL — Houston Independent School Dist., 1600 Washington St., Sept. 8, 17-room masonry San Felipe School, San Felipe-Post Oak Rd., from Farnsworth & Chambers Co., Inc., P. O. Box 74, **$275,296.** Est. $300,000. CD 8/15.

Tex., Lubbock—ADMINISTRATION—Texas Technological College, Lubbock, Sept. 23, general contract administration bldg. alterations, addns., from W. G. McMillan, Box 1447, **$492,-450.** CD 8/22.

CONTRACTS AWARDED

●†**Ala., Birmingham**—HOSPITAL—U. S. Eng., P. O. Box 1169, Mobile, Zone 7, 500 bed general medical veterans administration hospital, Serial No. CIVENG-01-676-59-13, to Thompson & Street Co., 72 II St. N. E., Atlanta, Ga., **$5,887,000.** Bids 9/8, awarded 9/28. CD 9/12, under LB.

Idaho, Orofino — DORMITORY — State Bd. Examiners, Boise, dormitory at State Hospital North, to Leigh Constr. Co., 435 Ada St., Boise, **$508,547.** Bids 9/20. CD 9/27, under LB.

Ill., Arlington Heights—SCHOOLS—Arlington Heights Public School Dist., R. E. Clabaugh, supt., two 1 and 2 story brick, rein.-con. schools, 410 N. State Rd. and 301 W. South Sts., to J. Emil Anderson & Son, 1809 W. Balmoral St., Chicago, Zone 40, **$425,000.** Bids 9/22, awarded 9/26. CD 9/15.

Mass., Worcester—SCHOOL—City, Bureau P. Bldgs., City Hall, school addns., alterations, Columbus Park School, 75 Lovell St., to Granger Constr. Co., Inc., 306 Main St., **$582,970.** Awarded 9/22. CD 6/8, under LB.

Tenn., Henderson—HIGH SCHOOL—Chester Co., Henderson, high school, to Gardner Constr. Co., 714 Allison St., Nashville, **$438,-900.** CD 12/3/46.

Ont., Parry Sound—HIGH SCHOOL—High School Bd., Parry Sound, 1 story, 60x120 ft., with 50x80 ft. admin. section, concrete block high school, Church and Isabella Sts., to Hill-Clark-Francis, Ltd., Whitewood Ave., New Liskeard. Approx. **$107,147.** J. B. Parkin Assoc., 717 Church St., Toronto, archts.

COMMERCIAL BUILDINGS

BIDS ASKED

October 13

●**Pa., Erie** — HOSPITAL — Hamot Hospital 2 and State Sts., hospital addn., modernization. $3,000,000. Johnson & Johnson, 821 Commerce Bldg., archts. CD 8/19.

October 14

Mass., Dalton — HOUSING — Town, Dalton Housing Auth., Walter C. Reed, chn., housing. Approx. $250,000. Plans deposit $100, refundable.

October 17

Calif., Los Angeles—DORMITORY—Jewish Home for the Aged, 325 S. Boyle Ave., 5 story, 54x131 ft., rein.-con. dormitory. **$400,000.** Extended date. Albert Criz, 556 S. Howard St., Los Angeles, archt. CD 8/22.

SOON LETS CONTRACT

Calif., Palo Alto—SCHOOL, etc.—Roman Catholic Church, San Francisco Diocese, 1100 Franklin St., San Francisco, soon lets contract St. Thomas Aquinas Church School and Convent. Approx. $50,000. Vincent G. Raney, 233 Post St., San Francisco, archt.

Calif., San Mateo—OFFICE—Pacific Telephone & Telegraph Co., 140 New Montgomery St., San Francisco, soon lets contract office. Approx. $250,000. Thomsen & Wilson, 315 Montgomery St., San Francisco, archts.

Ind., Indianapolis — PHARMACY — Butler University, O. M. Ross, pres. Rd. Trustees, Lemcke Bldg., soon lets contract 2 story, bsmnt., brick, stone, rein.-con. pharmacy bldg. $250,000. R. F. Daggett, N. Drive Fall Creek Blvd., archt. CD 12/27.

Mass., Pittsfield—SCHOOL—St. Lukes Hospital, Sisters of Providence, Pittsfield, soon lets contract, 5 story, bsmnt. 160x220 ft. School of Nursing, East St. **$500,000.** Hampson & Fisher, 30 Buckman St., archts. CD 9/16.

Minn., Duluth — CHURCH, etc. — First Lutheran Church, Rev. A. E. Hanson, 315 North 1 Ave. E., soon lets contract 2 story, bsmnt., 132x136 ft., rein.con. brick church and school, 11 Ave. E., Superior St. and London Rd. $450,-000. A. R. Melander, 613 Alworth Bldg., archt. CD 12/13.

Pa., Erie — SCHOOL — St. John The Baptist Roman Catholic Congregation, Erie, soon lets contract L shaped 65x244 ft., 63x125 ft. brick, rein.-con. frame parochial school, E. 27 St. $550,000. Meyers & Krider, 407 Commerce Bldg., archts.

Pa., Pittsburgh — SYNAGOGUE, etc. — Tree of Life Congregation, 218 Craft St., soon lets contract superstructure, 2 story, 51x90 ft., 14x52 ft. and 14x56 ft. brick, stone, limestone, steel synagogue and school, Shady and Wilkens Sts. $600,000, Charles M. & Edward Stotz, Jr., 801 Bessemer Bldg., archt., Alex Shatwve, 600 Berger Bldg., assoc. archt. CD 12/19/46.

Pa., Shaler Twp. (near Pittsburgh)—SHOPPING CENTER, etc.—Crescent Realty & Investment Co., Standard Life Bldg., Pittsburgh, soon lets contract 1 story, 144x215 ft. concrete block, brick shopping center and theater, Mt. Royal Blvd. $300,000. C. A. Lake, 203 Highland Terrace, Fox Chapel, Pittsburgh, archt.

Tex., Waco — DORMITORY — Methodist Orphanage Home, Waco, soon lets contract 2 story 2 unit dormitory. $300,000. Ray C. Arnbold, Nacol Bldg., Wichita Falls, archt. CD 8/2.

CONTRACTS AWARDED

●**Calif., Los Angeles** — DWELLINGS — Panorama Community Homes, 555 W. Manchester Ave., 219 frame, stucco dwellings, Community St., Minnet Pl., Cantaloupe Ave., Matilya Ave., Branford St., Mammoth Ave., to Kaiser Community Homes, 565 Manchester Ave., Los Angeles, **$1,286,100.**

●**Calif., Whittier** — DWELLINGS — Whittier Development Co., 6363 Wilshire Blvd., 241 dwellings in Tract 15741, to Albert Gersten, 6363 Wilshire Blvd., Los Angeles. Approx. **$1,804,700.** Paul Duncan, 6363 Wilshire Blvd., Los Angeles, archt.

●**Fla., Green Cove Springs**—APARTMENT—Memorial Homes Community, Green Cove Springs, 120 unit, steel concrete, brick apartment near Penny Farms Post Office, to Hillyer & Lovan, Consolidated Bldg., Jacksonville, Zone 1. Approx. **$1,000,000.** Awarded 9/19.

Ill., Chicago—SCHOOL—St. Dorothy School, 450 E. 78 St., Zone 19, 2 story, steel, brick, concrete school, to Henry Bros., 228 N. LaSalle St., Zone 1, **$268,000.** Awarded 9/12. CD 9/6.

Ill., Chicago—CONVENT—Vincent de Paul Parish, Kenmore and 71 Sts., Zone 41, 3 story, bsmnt., 50x120 ft., steel, brick, concrete, stone convent, to L. J. Graf Constr. Co., 700 N. Michigan St., Chicago, Zone 11, **$250,000.** Awarded 9/14. CD 7/14.

Ill., Wheeling—CONVALESCENT HOME—Servants of Mary, 2 mi. west of Wheeling, 3 story, concrete, brick convalescent home, 72 acre site, near here, to O'Brien & Solberg, 810 S. Tripp St., Chicago, **$612,000.** Bids 5/24. Awarded 8/12. CD 5/24.

Ind., Muncie—HOUSING—Sam Rosen, Petty Rd., 90 houses, 32 acre tract, Irvington addn., to Muncie Twelfth and Burlington Aves., to Sam Jacobs, 4119 Byram Ave., Indianapolis, Approx. **$600,000.**

Md., Baltimore — RESIDENCES — Kinwat Corp., 1110 Fidelity Bldg., forty 2 story, bsmnt., 20x31 ft. residences, Glen Eagle Rd., separate contracts. **$300,000.**

Miss., Jackson — CHURCH — First Presbyterian Church, c/o contractor, church, to Dye & Mullings, P.O. Box 485, Columbia. **$601,492.** Bids 9/8. CD 9/15.

N. Y., New York—APARTMENT—Delegart Realty Corp., 207 E. 84 St., 11 story apartment, 436 E. 56 St., to Kleban Constr. Co., c/o owner. Approx. **$600,000.** Boak & Raad, 175 Fifth Ave., Zone 10, archts.

●**N. C., High Point**—FURNITURE MART—Southern Furniture Exposition Bldg., Paul Casey, market mgr., High Point, 10 story annex to present 14 story furniture mart addn., 163,000 sq. ft. addnl. space, to Southeastern Constr. Co., 301 W. 2 St., Charlotte. Approx. **$1,000,000.** CD 10/25/44.

Pa., Baden — APARTMENT — Dr. T. F. Vontresca, Highland Bldg., Pittsburgh, two 2 story, bsmnt., 39x133 ft., and one 30x104 ft. brick, block apartments. Owner builds. **$390,-000.** Phillip Friedman, 121 S. Negley Ave. Pittsburgh, archt.

Pa., Bedford—HOSPITAL—Bedford County Memorial Hospital, Bedford, 3 story irregular shape hospital, to Moyer Bros., 2605 Beale Ave., Altoona. **$636,314.** CD 9/22, under LB.

Pa., Pittsburgh — APARTMENTS — Laketon Garden Apartments Corp., 409 Western Ave., East Pittsburgh, 3 story, bsmnt., apartment, Laketon Rd., Penna. Twp. Owner builds. **$250,-000.**

Tex., McAllen—HOUSING—M. C. Rutherford Co., c/o Hoyt E. Morris, McAllen, 200 low-cost housing units, own forces. **$925,000.** CD 4/5

INDUSTRIAL BUILDINGS

BIDS ASKED

October 12

Ky., Ashland—PLANT—Sandy Valley Grocery Co., H. H. Wheeler, pres., Paintsville, processing and mfg. plant. $200,000.

October 15

Ky., Morehead — PLANT — Sandy Valley Grocery Co., H. H. Wheeler, pres., Paintsville, processing and mfg. plant. $150,000.

Ky., Paintsville — PLANT — Sandy Valley Grocery Co., H. H. Wheeler, pres., Paintsville, processing and mfg. plant. $200,000.

Bids Asked

Ill., Chicago—FACTORY—Formfit Co., Van Buren and Peoria Sts., Zone 6, 1 story, steel, brick, concrete factory, 12 and Laramies Sts. $400,000. Friedman, Alschuler & Sincere, 223 W. Jackson St., Zone 6, archts.

Ill., Waukegan—PLANT—Coca Cola Bottling Co., 150 S. LaSalle St., Chicago, Zone 3, 100x400 ft., steel, concrete bottling plant, $220,000. Plans deposit $15. Maher & McGrew, 626 Grove St., Evanston, archts.

O., Cleveland—PLANT—Jones & Laughlin Steel Corp., 3 and Ross Sts., Pittsburgh, Pa., ammonium sulphate plant at Otis Works, 3341 Jennings Rd. $225,000. J. E. Graff, c/o owner, engr.

SOON LETS CONTRACT

Fla., Miami—WAREHOUSE, etc.—Florida Power & Light Co., 1934 Ingraham Bldg., soon lets contract warehouse and office, over $75,000.

Ga., Augusta—WAREHOUSE, etc.—McKesson & Robbins, Inc., c/o Kuhlke & Wade, archts., 16 Campbell Bldg., soon lets contract warehouse and office.

Ga., Doraville — PLANT — General Motors Corp., Doraville, soon lets contract plant addn. Approx. $68,000.

Pa., Pittsburgh—INTERLOCKING STATION—Pennsylvania R. R. Co., D. L. Sommerville, ch. engr. (central region), Pennsylvania Station, Zone 22, soon lets contract 2 story, brick, block, steel "Pitt" interlocking station, East Yd. at 15 St. $150,000.

Tex., Houston—WAREHOUSE—Marley Co., Inc., Fairfax and Marley Rd., Kansas City, Kan., soon lets contract warehouse. $70,000. Charles L. Kris, 5310 Pine St., archt.

LOW BIDDERS

La., New Orleans — TRADE DEPARTMENT — Singer Sewing Machine Co., 149 Broadway, New York, N. Y., Sept. 20, 2 story, 50x90 ft., steel, masonry trade department bldg., from Gervais F. Favrot Co., Balter Bldg., **$117,883.** CD 9/9.

Tenn., Fayetteville — BOTTLING PLANT, etc. — Coca-Cola Bottling Co., Fayetteville, Sept. 23, bottling plant and garage, from J. T. Schrimsher, Huntsville, Ala., **$104,480.** CD 9/14.

Tex., Tyler—AUTO PARKING—R. W. Fair, 225 S. College St., Sept. 20, 2½ story, (ultimately 5 story) auto parking, from O'Rourke Constr. Co., 1001 Commerce St., Dallas, **$203,-000.** Est. $200,000. CD 9/13.

CONTRACTS AWARDED

Ark., Forrest City—WAREHOUSE, etc.—Woodruff Electric Co-operative, Forrest City, warehouse and office, to Wilson Constr. & Realty Co., Rector Bldg., Little Rock, **$101,-295.** Bids 9/14.

Calif., Los Angeles—CELLAR, etc.—The Los Angeles Brewing Co., 1920 N. Main St., 3 story, 64x120 ft. rein.-con. cellar bldg., and 1 story, 99x120 ft. wash house, to Stanton-Reed, 816 W. 5 St., **$200,000.** Bids 8/19, awarded 9/23. CD 8/10.

Fla., Port St. Joe—PLANT—St. Joe Paper Co., Port St. Joe paper box plant, to The Austin Co., M & M Bldg., Houston, Tex., **$250,000.** Awarded 9/26.

Ga., Hartwell—MILL—Hartwell Mills, c/o contractor, mill addn., to C. M. Guest & Sons, Anderson, S. C., Approx. **$750,000.**

●**Ill., Chicago**—STEAM SERVICE STRUCTURE—Medical Center Steam Co., West Side Medical Center, Zone 12, Central Steam Service Structure, 3 brick, rein.-con. B and W boilers, to Stone & Webster Eng. Corp., 33 S. Clark St., Zone 3, **$6,000,000.** Skidmore, Owings & Merrill, 109 W. Monroe St., Zone 3, archts., Stone & Webster Eng. Corp., 33 S. Clark St., Zone 3, engrs.

●**Okla., Enid** — GRAIN ELEVATOR — Union Equity Co-operative, Enid, 7,000,000 bushel grain elevator for wheat storage, to Chalmers Horden Co., Hutchinson, Kan., **$2,250,000.** Horner & Wyatt, Dwight Bldg., Kansas City, Mo., engrs. CD 9/28/45.

UNCLASSIFIED

BIDS ASKED

October 10

N. J., Port Newark — RAILROAD SPUR TRACKS—At Office Chief Engineer, Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., railroad spur tracks for transit sheds in Blocks 10-A and 10-B, Contr. PN-7. Plans deposit $10.

October 17

Oregon—RURAL DISTRIBUTION LINES—Eastern Oregon Electric Co-operative, Inc., U. S. Natl. Bank Bldg., Pendleton, 18 mi. 7.2/12.5 kv rural distr. line, from Cayuse to Meacham, Umatilla Co. Plans deposit $25. Robert Welty, Box 282, The Dalles, archt.

SOON LETS CONTRACT

Oregon—RURAL DISTRIBUTION LINES—Waco Electric Co-operative, Inc., 316 E. 3 St., The Dalles, soon lets contract labor for 28 mi. 66 kv wishbone-type power lines between Maupin and Antelope. Plans deposit $25. Robert Welty, Box 282, The Dalles, engr. CD 75.

Tex., Alice—GOLF COURSE, SWIMMING POOL—Alice Country Club, Alice, soon lets contract golf course, $50,000; rein.-con. swimming pool, $50,000. Stanley W. Bliss, 818-19 Littlefield Bldg., Austin, archt. CD 5/4, under Commercial Buildings.

LOW BIDDERS

Fla., Miami — BAND SHELL — City, band shell at Bayfront Park, from William S. Green Co., 1243 20 St., Miami Beach. Approx. **$51,000.** CD 11/9/44.

Fla., Miami Beach—WATERFRONT IMPRVT.—City, Sept. 23, waterfront imprvt. Proj. Bh-9, from M. F. Comer Bridge &

Foundation Co., 990 N.W. North River Dr., Miami, **$154,515.**

Illinois—RURAL DISTRIBUTION LINES—M. J. M. Electric Co-operative, Inc., Carlinville, Sept. 22, 66 mi. single phase lines, tie lines, 46 mi. conversion and rehabilitation work, Jersey, Macoupin and Montgomery Counties, Proj. Illinois 40 NPR, Macoupin, from Townsend Electric Co., 112 Johnson St., Jackson, Tenn., **$230,400.** Bids 9/1 rejected. CD 9/9, under L&B.

Mass., Worcester — BROOK COVERING — City, Mayors Office, City Hall, Sept. 19, covering Beaver Brook between May and Maywood Sts., from Berger Metal Culvert Co., 440 Somerville, Somerville, **$107,900.** CD 9/14.

Minnesota—RURAL DISTRIBUTION LINES—East Central Electric Assn., Braham, Sept. 20, furnish materials, install about 266 mi. rural distr. lines in Benton, Morrison, Mille Lacs, Kanabec, Isanti, Pine and Chisago Counties. (Minnesota IT Kanabec), from Hallett Constr. Co., Crosby, **$310,768.** CD 9/2.

Mass., Pittsfield — GRANDSTAND — City, Supt. Pub. Bldgs., City Hall, Sept. 23, grandstand, Wahconah Park from David McNab Deans, Sabin Dr., Williamstown, **$105,205.** CD 8/10/48.

North Dakota — RURAL DISTRIBUTION LINES—Cass County Electric Co-operative, Kindred, Sept. 8, labor for 314.33 mi. rural distr. lines, Barnes and Cass Counties, from W. L. Coston & Sons, 1st. Natl. Bldg., Birmingham, Ala., **$489,869.** CD 8/29.

Ohio—RURAL DISTRIBUTION LINES—Belmont Electric Co-operative, Inc., Harry McAllister, mgr., St. Clairsville, July 22, 72 mi. rural distr. lines, incl. conversion, removal, new tie-lines, in Belmont and Monroe Counties, Proj. Ohio 32P Belmont, Sect. 2, from Wolfrey Electric Co., Inc., 2119 Cleveland Ave., Columbus. **$110,307.** CD 7/12.

†Oregon — TRANSMISSION LINE — Bonneville Power Admin., 729 N. E. Oregon St., Portland, Sept. 22, clearing 44.6 mi. right-of-way for Warm Springs sect., Chemult-Dreidt 230 kv transmission line, Inv. 4817, Wasco Co., from W. D. Zavalas, Oroville, Calif., **$109,340.**

Ore., Portland — GRANDSTAND — Portland Baseball Club, 2409 N. W. Vaughn St., 12,000 seat, rein.-con. grandstand, Boise and N2 Sts., from George H. Buckler, 425 S. E. 17 St., **$886,000.** CD 9/6.

Pa., Pittsburgh—SWIMMING POOL, etc—City, Bureau Parks & Recreation, City-County Bldg., Sept. 15, swimming pool and bathhouse, Bloomfield Playground, from D. W. Smith, Inc., 421 Boggs Ave., **$183,755.** CD 9/2.

CONTRACTS AWARDED

Ark., Texarkana—DRIVE-IN THEATRE—Bounds & Houck Drive-In Theatres, Inc., Texarkana, 700 car drive-in motion picture theatre, incl. screen tower, projection booth, concession bldg., walks, drives, lighting in-car speakers, etc. at intersection New Boston and Robinson Rds., separate contracts. Approx. **$70,000.**

Calif., San Francisco—LIVESTOCK BLDG.—State Div. Architecture, P. Wks. Bldg., Sacramento, heating and ventilating work at 1-A District Agricultural Assn. Livestock Exposition Bldg., (Cow-Palace) to Crowley Co., 333 S. Van Ness Ave., **$51,193.** CD 8/7/47.

Ia., Creston—DRIVE-IN THEATRE—Commonwealth Theatres, Inc., J. D. Raunagke, mgr., Creston, drive-in theatre, fairgrounds near city limits, separate contracts. Approx. **$60,000.**

Ky., Bowling Green—DRIVE-IN THEATRE—Alton Rush & Davis Duff, c/o 1109 Covington Ave., Lost River Drive-In-Theatre, Nashville Rd., 2.5 mi. from here, separate contracts, Approx. **$60,000.**

Miss., Lumberton—NATURAL GAS SYSTEM—United Gas Corp., c/o contractor, natural gas sys., to Carruth Contg. Co., Louisiana National Bank Bldg., Baton Rouge, **$200,000.**

Mo., Poplar Bluff—DRIVE-IN-THEATRE—Clyde Hogg & Clyde Richardson, Poplar Bluff, drive-in theatre, Rt. 67, approx. 4 mi. south of here, separate contracts. **$100,000.**

Oregon—RURAL DISTRIBUTION LINES, etc.—Coos-Curry Co-operative, Coquille, 2 substations and 35 mi. 69 kv. wood-pole transmission line between Gold Beach and California line, Curry Co., to Mezel & Kimball, Redding, Calif., **$250,793.** Awarded 9/26. Wisner & Becker, 1219 28 St., Sacramento, Calif., engrs. CD 3/29.

Oregon—RURAL DISTRIBUTION LINES—Pacific Power & Light Co., 920 S.W. 6 St., Portland, 11 mi. 66,000 volt transmission line, The Dalles to Dufur, Wasco Co. Force account. **$150,000.** Awarded 9/20. M. C. Thorn, The Dalles, engr. CD 11/19/47.

Tennessee—RURAL DISTRIBUTION LINES—Greeneville Light & Power Co., Greeneville, 300 mi. rural distr. lines and imprvs., Greene Co., to Townsend Electric Co., Jackson, **$713,511.**

Texas—GAS PIPELINE—Lone Star Gas Co., 1915 Wood St., Dallas, 100 mi. 6 in. natural gas pipeline between San Saba and Kerrville. Owner builds. Approx. **$225,000.**

Texas—OIL PIPELINE—Pasotex Pipe Line Co. 2411 N. Field St., 22 mi. 6 in. crude oil pipeline between Snyder fields and Colorado City. Owner builds. **$186,000.** CD 5/27.

Proposal Advertisements see pp. 78 to 81

OFFICIAL PROPOSALS

Bids: November 8, 1949 (391)

Waterworks Improvement

The City of Decatur, Illinois, will receive sealed bids for Waterworks Improvements—City Project No. 7-49 until 10:00 o'clock A.M. (Central Standard Time) on the 8th day of November, 1949, at the Council Room on the Fourth Floor of the County Building, in the City of Decatur, State of Illinois, at which time and place all bids will be publicly opened and read aloud.

The proposed improvements in general consist of the following:

Recarbonation System for Water Supply
High and Low Head motor driven pumping equipment
Surface wash system for filter beds
Repairs to high dam
Switch gear and electrical construction at main pumping station
Standby generating equipment
Additions to lime house and new lime handling equipment
Elevated steel water storage tank—capacity 1,500,000 gallons
Miscellaneous items of construction consisting of post-chlorination, raw water intake screen, raising treated water well, separation of walls between coagulation basins and clear well, repairs to valves in filter house, replacement of media in filter beds, heating and boiler system and rehabilitation work on buildings at waterworks plant.
Approximately 14 miles of water mains ranging in sizes from 6" to 18".

Bids will be accepted in sections or combinations of one or more or all as specifically set forth in the specifications.

The Contract Documents, including plans and specifications, are on file and open to public inspection, at the office of the Mayor of the City of Decatur, Illinois, at the said County Building.

Copies of the documents, including plans and specifications, may be obtained by depositing Fifty Dollars ($50.00) with the said Clerk of said Municipality for each set of documents so obtained. The amount of the deposit for one set of documents will be refunded to each actual bidder bidding direct to the City and who returns the plans and documents in good condition within 10 days after the opening of bids. Twenty-five dollars ($25.00) will be refunded for each of all other sets of documents so returned.

A certified check or bank draft, payable to the City of Decatur, Illinois, or a satisfactory bid bond executed by the bidder and a surety company, in an amount not less than five percent (5%) of the bid shall be submitted with each bid.

No bid shall be withdrawn after the opening of bids without the consent of the City of Decatur, Illinois, for a period of sixty (60) days after the scheduled time of closing bids.

Bid blanks will not be issued to any prospective bidder later than twenty-four (24) hours before the date of the letting.

The successful bidder will be required to furnish a satisfactory performance bond.

It will be mandatory upon the successful bidder, or bidders, to whom the work shall be awarded, and any subcontractor under him, to pay not less than prevailing rates for all labor, that may be in effect at the time of receiving bids, including the prevailing rates for legal holiday and overtime work.

The City of Decatur, Illinois, reserves the right to reject any and all bids and waive any informalities in bidding.

CITY OF DECATUR, ILLINOIS
James A. Hedrick, Mayor
D. F. Davis, City Clerk

September 26, 1949

Bids: October 19, 1949 (392)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Chapter 63 Laws of 1936, as amended, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 19th day of October 1949, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the elimination of the following grade crossings:

ERIE COUNTY

Cont. No.	Type	Name of highway and miles	Deposit for plans	Bid deposit	Dept. est.
PSC 5472	Asp. conc. opt. 8" cem. conc. pavt. var. wdt. R.R. track changes	Elim. of grade crossing of the NYCRR with Erie St., West Seneca St., Church St. and the Terrace in the city of Buffalo	$20	$250,000	$4,520,000
PSC 5472	Buildings & misc. work	Elim. of grade crossing of the NYCRR with Erie St., West Seneca St., Church St. and the Terrace in the city of Buffalo	$10	7,000	125,000

Maps, plans, specifications, and estimates may be obtained at the office of the Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineer Charles R. Waters, 65 Court Street, Buffalo, N. Y., and may be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $20.00. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioners of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

(Continued on page 79)

CONTRACTORS
Watch this Section
for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

Bids: October 20, 1949 (386)

Route Improvements

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTES 4, 4 ALTERNATE, 34 & 35

For North Shore Improvements, Madison Township and Borough of Matawan, Middlesex and Monmouth Counties.

Estimated:

400 cu. yds. Roadway Excavation-Earth
1,300 sq. yds. 9" Plain Concrete Pavement Surface
900 lin. ft. Concrete Curb

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Thursday, October 20, 1949, at eleven o'clock (11:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten per cent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: October 18, 1949 (384)

State Road Work

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A.M. (Eastern Standard Time), the 18th day of October, 1949, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract and/or contracts:

For the construction of grading, drainage, structures, and paving of Turnpike Section 31F, part of the Western Pennsylvania Turnpike Extension in Penn and North Huntington Townships, Westmoreland County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 3,850 feet West of Legislative Route 64232 (Traffic Route 180) in Penn Township at Turnpike Station 193+50, Westmoreland County, thence in an Easterly direction 17,543 feet to a point approximately 295 feet West of the centerline of Brush Creek at Turnpike Station 371+90.83, North Huntington Township, Westmoreland County, a distance of approximately 3.32 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation, 531,000 cubic yards; Class 1A Excavation, 134,500 cubic yards; Class 2 Excavation, 14,000 cubic yards; Borrow Excavation, 70,000 cubic yards; Reinforced Concrete Pavement, 94,600 square yards; Class A Concrete, 315 cubic yards; Class B Concrete, 907 cubic yards; Plain Steel Bars, 116,500 pounds; Fabricated Structural Steel, 274,000 pounds.

For the construction of substructure, Turnpike Section 31GF, Brush Creek Viaduct, part of the Western Pennsylvania Turnpike Extension in North Huntington Township, Westmoreland County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 305 feet West of the centerline of Brush Creek at Turnpike Station 371+80.50, North Huntington Township, Westmoreland County, thence in an Easterly direction 1,047 feet to a point approximately 740 feet East of centerline of Brush Creek in North Huntington Township, at Turnpike Station 382+27.99, Westmoreland County, a distance of approximately 0.2 miles.

The approximate quantities of the principal items are as follows:

SUBSTRUCTURE

Class II Excavation, 6,700 cubic yards; Concrete Pier Bases and Abutment Footers, 2,000 cubic yards; Concrete Pier Shafts and Abutments Above Footers, 4,550 cubic yards; Plain Steel Bars, 503,000 pounds; Structural Carbon Steel, 6,000 pounds.

In general, the principal parts of the work include:

(a) Excavation for Abutments and Land and Creek Piers.

(b) Construction of concrete substructure.

Copies of plans, specifications, and other contract documents, including cross-sections are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on October 4, 1949. Copies of specifications for grading, drainage, and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of Fifty ($50.00) dollars per set, for each section.

Plans and contract documents exclusive of cross-sections and specifications may be obtained from the Commission upon deposit of Ten Dollars ($10.00) for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans, contract documents, and cross-sections returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The Pennsylvania Turnpike Commission reserves the right to award each section as a separate contract or as a combined contract.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
Sept. 27, 1949

Bids: October 20, 1949 (385)

Construction of Route 4

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 4, SECTION 4J

Construction of Route 4, Section 44, Grading and Drainage, Cape May Court House Relocation, Cape May County, Federal Aid Projects F-8(2) & F-24(3). Length 4.174 miles.

Estimated:

65,100 cu. yds. Roadway Excavation-Earth
47,000 cu. yds. Wet Excavation
188,500 cu. yds. Borrow Excavation
9,700 lin. ft. Reinforced Concrete Culvert Pipe
380 lin. ft. Cast Iron Culvert Pipe
940 lin. ft. Corrugated Metal Culvert Pipe

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Thursday, October 20, 1949, at eleven o'clock (11:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bids.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 834, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 1433 Bacharach Boulevard, Atlantic City, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be 65¢ per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be 75¢ per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.25 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less tan ten per cent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: October 21, 1949 (389)

Electrical Systems for Fire Pumping Station

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-111

Sealed proposals for furnishing and installing electrical systems for the fire pumping station at New York International Airport will be received in the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, N. Y., until 11:45 A. M. Friday, October 21, 1949, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman,
Chairman.

New York, October 6, 1949

Bids: October 21, 1949 (390)

Piping, Plumbing and Heating System for Fire Pumping Station

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-110

Sealed proposals for furnishing and installing piping, plumbing and heating system for the fire pumping station at New York International Airport will be received in the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, N. Y., until 11:30 A. M. Friday, October 21, 1949, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman,
Chairman.

New York, October 6, 1949

(Continued on page 80)

OFFICIAL PROPOSALS
(Continued from page 79)

Bids: October 19, 1949 (370)

Improvement of Roads, Walks & Planting

INVITATION NO. 50-9

Subject: NOTICE OF ADVERTISEMENT FOR BIDS FOR IMPROVEMENT OF ROADS, WALKS AND PLANTING TDU, T AND U AREAS, OAK RIDGE, TENNESSEE.

TO: Prospective Bidders and Others Concerned:

1. On September 19, 1949, Roane-Anderson Company, as Agent for and on behalf of the United States of America under Contract No. W-7401-eng-115, will issue invitations for bids for Improvement of Roads, Walks and Planting TDU, T and U Areas, Oak Ridge, Tennessee.
2. The work consists of furnishing all labor, tools, equipment, materials (except those furnished by the Agent) and performing all work for the improvement of approximately two and seven hundredths (2.07) miles of city roads and lanes, including earthwork, drainage structures, concrete combined curb and gutter, hot asphaltic concrete base for pavement widening and leveling or wedge course, stabilized aggregate base course for widening existing and constructing new paved areas, hot asphaltic concrete surfacing, asphaltic concrete sidewalk along one side of roads and lanes; construction of cement concrete entrance walks and steps to approximately five hundred and four (504) dwelling units; top soil and seeding of newly graded areas and/or areas disturbed during construction, planting of trees; and appurtenant and related work together with such incidental work at the sites as may be required.
   Approximate quantities for major items are listed:
   - 55,000 Square yards top soil and seeding.
   - 22,450 Linear feet combined curb and gutter.
   - 152,736 Square feet of concrete entrance sidewalks (4" thickness).
   - 168 Cubic yards concrete steps.
   - 123,850 Gallons of Petroleum asphalt for hot asphaltic concrete including tack material.
   - 8,005 Tons of asphaltic concrete for roadway surfacing and asphaltic sidewalks.
   - 82 New catch basins.
   - 3,092 Linear feet of reinforced concrete pipe culverts.
   - 4,080 Cubic yards of borrow excavation.
   - 1,512 Trees.
3. All bids will be considered not only on the basis of the lowest bid but on the applicable experience, financial assets, integrity of the bidder and his ability to obtain equipment and employees. The Roane-Anderson Company, as Agent aforesaid, reserves the right to reject any and all bids and to waive any informality in bids received, and to accept or reject any item of any bid, unless such bid is qualified by specific limitation. However, all accepted items will be awarded as a whole to one bidder.
4. Bids will be received until 2:00 P.M. (EST) October 19, 1949 and then publicly opened. Two hundred forty (240) calendar days will be allowed for the completion of the work.
5. Requests for plans and specifications should be made to Roane-Anderson Company, Attention: F. C. Feld, Assistant Chief Purchasing Agent, Purchasing Dept., P. O. Box 456, Oak Ridge, Tennessee, and should be accompanied by a Postal Money Order or a certified check payable to the order of Roane-Anderson Company, in the sum of $15.00 which deposit will be refunded after the plans and specifications have been returned in good condition.
6. For additional information address the above mentioned, or telephone F. C. Feld, through Knoxville 4-3387, extension 24 or 25, or Oak Ridge 5-4361, extension 24 or 25.

ROANE-ANDERSON COMPANY, AS AGENT FOR AND ON BEHALF OF THE UNITED STATES OF AMERICA.

OFFICIAL PROPOSALS

Bids: October 19, 1949 (380)

24-Inch Sewer

BIDDERS NOTICE
BOROUGH OF HAWTHORNE,
NEW JERSEY

Sealed proposals for furnishing and installing approximately 1700 feet of 24-inch sanitary sewer will be received by the Commissioners of the Borough of Hawthorne, New Jersey, until 8:15 P.M., on October 19, 1949, at a meeting of the Board of Commissioners at the Lincoln School, Hawthorne Avenue, Hawthorne, New Jersey. At this time the sealed bids will be opened and read for consideration by the Board.

Copies of Plans, Specifications and Form of Contract may be obtained at the office of the Department of Public Works, Goffle Road, Hawthorne, New Jersey, or at the office of Clyde Potts, Consulting Engineer, 30 Church Street, New York City, upon deposit of Fifteen ($15.00) Dollars per set, which shall be refunded only under the conditions that they be returned in good condition within thirty (30) days and provided that a bona fide bid has been made.

A certified check for 10% of the amount of the bid payable to the Borough of Hawthorne, and surety consent must accompany each bid.

The form of bid supplied must be used in bidding.

The Board of Commissioners of the Borough of Hawthorne reserves the right to reject any or all bids and to waive defective or informal bids if the best interests of the Borough are served.

LOUIS BAY, 2nd
Mayor

GEORGE V. GRILLO,
Borough Clerk

The CONTRACTOR—

like a GENERAL

Prepares for Victory

BEFORE he goes into battle on a new job he sees that his army of construction workers is *equipped.*

Looking over ENGINEERING NEWS-RECORD he sees, let us say, a new type of rubber-tired wheelbarrow. Looks into their success on other jobs—and orders them. He sees a crawler crane, which is particularly capable of setting steel—some of the big steel erectors are using many of them. He contracts for one to be delivered to the new job. New developments in wire rope —successful use of special cements—roofing plank or composition siding of light weight, speedily placed at low cost—and other elements that save him time and mony—are shown in picture and text.

Alert Contractors, who not only read the proposals for new jobs, but who follow the *news of the manufacturers* in the display advertising pages—get the most out of their ENGINEERING NEWS-RECORD. They are the men who are able to estimate a job close enough to *"land it"*—and who make money on the contract.

OFFICIAL PROPOSALS

Bids: November 9, 1949 (382)

Construction of Pumping Station, Pumping Equipment and Intercepting Sewers

Sealed proposals will be received by the Board of Contract and Supply of the City of Binghamton, N. Y., until 3:00 P.M. on Wednesday, November 9th, 1949, at its office in the Municipal Building and at which time and place the same will be opened and publicly read embracing the following Contracts:

1. Contract No. 5—General Contract Pennsylvania Ave. Pumping Station.
2. Contract No. 6—Pumping Equipment
3. Contract No. 7—Electrical Equipment
4. Contract No. 8—Plumbing Equipment
5. Contract No. 11C—Intercepting Sewers including River Crossing

Copies of drawings, specifications and other contract documents may be examined at the office of the City Engineer, City Hall, Binghamton, N. Y. and complete sets of such documents may be obtained upon the payment of $35.00 as a deposit for each set. If the documents are returned in good condition within thirty (30) days following award of this contract, $25.00 of the deposit for each set will be returned to each actual bidder; and $15.00 of the deposit for each set will be returned to each non-bidder, the balance being retained to defray the actual cost of reproduction of the sets of documents.

These proposals must be sealed and properly marked on the outside to indicate the contents and each shall be accompanied by a certified check or New York draft to the order of Everette E. Allen, Comptroller, or cash in the sum of five percent (5%) of the total amount of the proposal which amount will be held by the City without interest as a guarantee that the party or parties whose bid is accepted will enter into a contract and furnish a bond with security satisfactory to the Mayor in the sum of fifty percent (50%) of the amount of the contract.

The City of Binghamton reserves the right to reject any or all bids if such action is for the best interests of the City.

J. A. GILES, Acting Secretary,
Board of Contract and Supply.

Bids: November 1, 1949 (383)

Intercepter

STATE OF RHODE ISLAND AND
PROVIDENCE PLANTATIONS
DEPARTMENT OF FINANCE
DIVISION OF PURCHASES

NOTICE TO SEWER CONTRACTORS

Sealed bids for constructing BLACKSTONE VALLEY INTERCEPTER, Sec. B., in Pawtucket, Rhode Island, will be received at office of State Purchasing Agent, State House, Providence until 10:00 a.m., Eastern Standard time on November 1, 1949 and publicly opened and read at that time.

Project involves 4,010 ft. of 60-in. sewer including approximately 2,565 ft. in tunnel, 3,730 ft. of 54-in. sewer, 265 ft. of 6-ft. 0-in. by 3-ft. 0-in. sewer, 535 ft. of 15-in. sewer, and appurtenant work.

Drawings and contract documents may be seen at above office or office of Blackstone Valley Sewer District Commission, State Office Building, or Metcalf & Eddy Engineers, 1300 Statler Building, Boston, Massachusetts, weekdays except Saturdays and holidays, 8:30 a.m. to 4:30 p.m., and may be obtained from office of State Purchasing Agent on $25 deposit.

Bid Security $50,000 certified check, bid bond, or cash, performance bond 100 percent.

Prevailing wage rates and Public Work labor laws applicable.

Franklyn A. Adams
State Purchasing Agent

(Continued on page 81)

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

U. S. Government

(Continued from page 80)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2799) will be received by Bureau of Reclamation, Tracy, California, October 26, 1949, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, concrete lining, and structures, station 4108+50 to station 4535+00, Delta-Mendota Canal, Central Valley Project. The work is situated about 7 miles from Dos Palos, California. Principal items are approximately: excavation 1,900,000 cu. yds.; furnishing cement and reinforcement bars and placing 57,300 cu. yds. of concrete; furnishing and laying 3,500 lin. ft. of pipe; installing 150,000 lbs. of gates, hoists, and metalwork; and other work. Time allowed for completion will be 570 days. For particulars, address Bureau of Reclamation, Tracy, California; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(379)

OFFICIAL PROPOSALS

Bids: October 13, 1949 (388)

Construction of New Shreveport Memorial Airport

SECTION A—INVITATION FOR BIDS
(CONSTRUCTION CONTRACT)

SEPTEMBER 13, 1949
SHREVEPORT
CADDO PARISH
LOUISIANA

SEALED BIDS, subject to the conditions contained herein, will be received until 10:00 A.M. o'clock, central standard time, Thursday, October 13, 1949 at the Council Chamber, City Hall, Shreveport, Louisiana, and then publicly opened and read aloud for furnishing all labor and materials and performing all work for construction of the New Shreveport Municipal Airport, Federal Aid Project No. 9-16-019-901, consisting, principally, of the work outlined in one of the following combinations:

COMBINATION NO. 1: Consists of one graded and turfed landing strip with a concrete runway and connecting concrete taxiways, three additional graded and turfed landing strips and a sand clay gravel road providing the re-routing of 70th Street.

COMBINATION NO. 2: Consists of all work included under Combination No. 1, plus a concrete apron and an additional concrete runway and connecting concrete taxiways.

The approximate quantities involved in the proposed work are:

COMBINATION NO. 1:
Category No. 1
310—Acres of clearing
541—Acres of clearing and grubbing
0—Lin. Feet of 15" Pipe Culvert
4,975—Lin. Feet of 18" Pipe Culvert
6,274—Lin. Feet of 24" Pipe Culvert
4,140—Lin. Feet of 30" Pipe Culvert
108—Lin. Feet of 36" Pipe Culvert
104—Lin. Feet of 54" Pipe Culvert
68—Lin. Feet of 12 gauge pipe arch (minimum of 24 square feet of opening—maximum rise 5 feet)
184—Lin. Feet of 10 gauge pipe arch (minimum of 50 square feet of opening—maximum rise 6.75 feet)
230—Cubic yards of concrete for inlets, headwalls and spillways
12,950—Lbs. of inlet gratings and frames
106—Square yards of grouted rubble at headwalls and spillways
1,481,000—Cubic yards of unclassified excavation
1,740—Lin. Feet of 2-way underground electrical conduit (concrete encased)
237—Lin. Feet of 8-way underground electrical conduit (concrete encased)
88—Visual day markers
1—Water well (180 foot depth)
0—Lin. Feet of extra depth for water well (from 180 ft. to a maximum of 250 ft.)
2,500—Cubic yards of sand clay gravel surface course
Category No. 2:
24,200—Lin. Feet of Fences, Class "E" (Chain-Link)
2—Driveway Gates (air)

OFFICIAL PROPOSALS

Category No. 3:
376—Acres of seeding with Bermuda seed (including Tilling and Fertilizing)
155—Acres of seeding with Lespedeza seed (including Tilling and Fertilizing)
467—Square yards of solid sodding (including Tilling and Fertilizing)
6—Acres of mulching
Category No. 4:
76,950—Square yards of 8" concrete slab pavement
120,800—Square yards of 10" concrete slab pavement
COMBINATION NO. 2:
All of the work included in Combination No. 1 and
Category No. 5:
1,566—Lin. Feet of 2-way underground electrical conduit (concrete encased)
306—Lin. Feet of 8-way underground electrical conduit (concrete encased)
50,670—Square yards of 8" concrete slab pavement
99,000—Square yards of 10" concrete slab pavement

Bidders may have the option of submitting proposals on any desired combination of the categories of work as outlined above. Bidders shall bid on all the individual items contained in any and all categories selected for bidding.

Minimum labor rates for the construction of the proposed work have been established by the Secretary of Labor, and a Schedule of labor classifications and wage rates to be paid are included in the proposal, and will be made a part of the contract. The bid shall contain a statement that the prices quoted are based on such wage rates.

Plans, specifications and contract documents may be examined, without charge, in the office of the Commissioner, Department of Public Works, City Hall, Shreveport, Louisiana, or the firm of Sam'l. G. Wiener, E. M. Freeman and Associates, Architects—Engineers, Texas Eastern Building, Shreveport, Louisiana, or, will be forwarded to prospective contractors upon deposit, with the Architects—Engineers, of $30.00 for one set as a guarantee of the safe return of the plans, specifications and contract documents. The full amount of this deposit will be returned to each actual bidder submitting a bona fide bid immediately upon return of the plans, specifications and contract documents, all in sound and unmutilated condition. No refund will be made upon plans and specifications which are not returned within ten days after reception of bids. Additional sets of plans, specifications and contract documents may be obtained by prospective contractors upon making a deposit of $30.00 for each additional set issued, and paying the cost of reproduction of the plans, specifications and contract documents for the additional sets. The deposit will be returned to the contractor immediately upon the return of the documents, unmutilated, provided the documents are returned within ten days after bids are received. Repayment for reproduction costs of extra sets of documents will not be made. Each bid must be accompanied by bid security, which may be a bid bond, a check payable to the City of Shreveport, drawn on and certified by a National Bank, or Cashier's check for an amount equal to 5% of the largest possible aggregate total of the prospective bidder's proposal. Performance Bond will be required of the successful bidder for an amount of not less than 10% of the contract price.

Time limit for the construction of the proposed work, exclusive of turfing, shall be 250 working days.

Liquidated damages for delay will be invoked.

Seasonal operations for turfing are required. Time limit for the turfing work is 228 working days between February 15 and October 1.

Liquidated damages for delay for turfing section of the work will be required.

Bidders shall examine the plans, specifications and all related documents, and will be held to have examined the site of the work, and to have familiarized themselves with all of the circumstances and conditions effecting the costs and nature of the work. Bids must be submitted on the form of bid furnished for the purpose by the Architect—Engineer, and the successful bidder will be required to execute the standard form of contract for construction within ten days after formal award of contract.

OFFICIAL PROPOSALS

Right is reserved, as the interest of the City may indicate, to reject any and all bids, to waive informality in bids received, and to accept or reject any items and any category of any bid unless subject bid is qualified by specific limitation.

Envelopes containing bids must be sealed and addressed to Secretary-Treasurer of City of Shreveport, Louisiana, City Hall, Shreveport, Louisiana and Marked "Bid for New Shreveport Municipal Airport, Shreveport, Louisiana. To be opened 10:00 A.M., central standard time, Thursday, October 13, 1949."

/s/ J. T. Tanner
Secretary-Treasurer

Bids: October 20, 1949 (387)

Construction of Street

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

EAST MAIN STREET, BOUND BROOK
Construction of East Main Street from South Main Street to Mountain Avenue, Bound Brook Borough, Somerset County, Federal Aid Secondary Project No. S-99(2). Length 0.246 miles. The principal items of construction are:
Estimated:
3,365 cu. yds. Excavation Unclassified
1,036 cu. yds. Subbase
6,223 sq. yds. 8" Rein. Conc. Pavement

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Thursday, October 20, 1949, at eleven o'clock (11:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and Supplements and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 149 West Main St., Somerville, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be 65¢ per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be 75¢ per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.25 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specificatibns and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commisioner

CONSTRUCTION PROJECT MANAGERS SUPERINTENDENTS

During the next few months an internationally known engineering and building firm will require several top notch project managers and superintendents with proven ability to manage various sized industrial construction projects consisting of building construction and mechanical installations.

These positions offer lengthy employment, excellent working conditions and good salary for qualified applicants.

Please submit complete resumes setting forth experience, education, size jobs under your supervision, references and date of availability.

P-9980, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

SENIOR CIVIL ENGINEER

Specialized in Earth Dam design and construction, familiar with soil mechanics including sand drain practice.

For Work on Guam

Send complete record of background to:

PACIFIC ISLANDS ENGINEERS
Frederic R. Harris, Inc.
Blanchard & Maher
Keller & Gannon

Ferry Bldg., San Francisco, Cal.

STRUCTURAL DESIGNERS DETAILERS

on bridge and highway projects
Consulting Engineers Office
Location—Middle West
Give full experience, reference and salary expected.

P-9954, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED ESTIMATOR

Established General Contractor wants Estimator with Engineering background, experienced in both Field and Office. State all qualifications.

P-1036, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DRAFTSMAN, MECHANICAL ENGINEER, GENERAL

Stoker Manufacturer in Pennsylvania wants Estimator, Designer, Draftsman. Permanent.

P-1048, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

BUILDING CONSTRUCTION SUPERINTENDENT

Construction Company desires an experienced general superintendent between the ages of 45 and 55 for work on multiple-story construction in the South. Good salary assured. Applications must show qualifications and past experience. Address:

P-1086, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

BRIDGE DESIGNERS DESIGNER DRAFTSMEN RESIDENT HIGHWAY ENGINEERS

Experienced men wanted. State qualifications, age, salary and date available in first letter. Construction period, 24 months. Location, Eastern or Western Pennsylvania.

P-1078, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

WANTED CONSTRUCTION EXECUTIVE

A man thoroughly experienced in the administrative and technical phases of the construction industry will be added to the permanent staff of a large well-established Western organization. The person selected will have a responsible position in the preparation of bids, plus top-level field supervision and coordination of current construction projects, plus broad responsibility for the necessary office administration. Past experience must have demonstrated the ability to handle such a position on a cost-conscious, competitive basis. Please furnish details of your personal and experience record. These will be kept confidential. Our employees know of this ad. Salary open.

P-1070, Engineering News-Record
68 Post St., San Francisco 4, Calif.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

CONSTRUCTION ENGINEER. The Housing Authority of the Birmingham District has need of a capable and experienced planning and construction engineer for the development of its extended program of low-rent public housing and slum clearance made possible by the Housing Act of 1949. Must have thorough knowledge of the entire field of civil and construction engineering including related mechanical and electrical phases. Program to cover two years or longer. Applicants will state salary demanded, when available and pertinent information as to education and experience. Address Housing Authority of the Birmingham District, 600 North 24th Street, Birmingham 4, Alabama.

POSITIONS VACANT

WANTED—ENGINEERS, Architects, Draftsmen experienced in the design of sewers, sewage treatment plants, water treatment plants and industrial buildings. Also engineers to supervise construction. State qualifications, experience. Salary requirements and date available. P-1155, Engineering News-Record.

WANTED: CONCRETE Paving Research Engineer, age 30 to 45, at least 8 years experience in concrete highway paving construction, design, and testing. Excellent opportunity for engineer interested in research and development. Salary open, depending upon qualifications. Location: near Chicago. P-9911, Engineering News-Record.

ASSISTANT OR Associate Professor to teach Fluid Mechanics advanced courses in Hydraulic Engineering and assist with research program in Hydraulic Engineering. Advanced degree is preferred. P-1018, Engineering News-Record.

WANTED: EXPERIENCED Structural Detailer, good opportunity. Address Arkansas Foundry Company, Box 909, Little Rock, Arkansas.

STRUCTURAL DRAFTSMEN. Require several first class experienced detailers and checkers for structural fabricating plant (in Detroit). Give complete information, experience and rate desired. P-1021, Engineering News-Record.

WANTED: EXPERIENCED Precast Concrete Keymen and Mechanics familiar with casting, shipping, and finishing joists, slabs and specialties. Expanding business. Steady work. Good pay. Give full particulars about yourself. Write—M. A. Arnold, P. O. Box 477, Greensboro, N. C.

STRUCTURAL STEEL Detailers—Also Detailers for ornamental and miscellaneous iron. Experienced men only. Give all pertinent information. P-1082, Engineering News-Record.

ESTIMATOR WANTED for heavy engineering construction for public work and industrial buildings with New York firm. Write giving full qualifications. P-1043, Engineering News-Record.

POSITIONS WANTED

ESTIMATOR OR Specifications writer. Graduate, 30 years wide experience building and general construction, including estimating, specification writing, purchasing. Now located on West Coast. Salary $125 per week. PW-1080, Engineering News-Record.

CIVIL ENGINEER

Must be college graduate and have preferably three years' inside or outside experience. Permanent position in engineering department of large contractor doing heavy construction work. Ambition, industry and desire to get ahead are more important than previous experience. Excellent opportunity for advancement, as most of our executives have worked up from similar positions. Location, Chicago. State age, education, experience, salary desired and references which will not be contacted without your consent.

P-1088, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED ESTIMATOR

General Contractor located near Chicago, operating nationally, has opening for top-flight man. Reply in confidence, give background and experience. Commensurate salary.

P-1079, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ARCHITECTURAL, ELECTRICAL, MECHANICAL, STRUCTURAL

Men for immediate permanent employment in drafting room positions as job captains and squad leaders. Do not apply unless well qualified for work on building construction. State schooling, experience and salary expected.

Leo A. Daly Company
633 Insurance Bldg. Omaha, Nebr.

POSITIONS WANTED

CONTRACTOR'S RIGHT Hand Man—Experienced Manager, Engineer-Estimator, Purchasing Agent on: Commercial, Multi-Residential, Industrial Bldg., Construction, Including all Utilities; and on Engineering Construction covering Airports, Marine Facilities; Railroads, Roads, Quarry Operations. Desires permanent position as Manager, Estimator, Purchasing Agent for Gen. Contractor. Good background for position of Area Sales Manager for Cement Co., Bldg. Supply Co., Equipment Dealer. In reply state exact salary connected with position open. References. PW-9913, Engineering News-Record.

PROJECT MANAGER: General or Job Superintendent: 30 years experience; heavy and light construction; housing; apartments; schools; hospitals; office buildings; chemical; industrial plants; powerhouses; handle all trades, including mechanical and allied work. PW-8779, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT with excellent background in heavy construction; with following. Geo. W. Urban, Alexander Road, Bedford, Ohio. Phone 1021-J-5.

STRUCTURAL ENGINEER, graduate, licensed, 25 years experience design and construction of subways, buildings, foundations, waterfront structures, etc., and analysis of indeterminate structures. PW-9959, Engineering News-Record.

GENERAL CONSTRUCTION Superintendent or Project Manager, Graduate Civil and Mechanical Engineer, 15 years experience as General Supt. on varied projects including refineries, power and industrial plants, utilities, housing, earthwork and docks. Past six years on foreign work, speaks and reads several languages. A-1 references. Native American, good health. Foreign assignment preferred. Available immediately. PW-9945, Engineering News-Record.

STRUCTURAL DESIGNER. Ten years experience, steel and concrete comm'l, ind'l, bldgs., power plants, and copper mine structures. Prefer Met. New York. Will relocate for opportunity. Available now. PW-9924, Engineering News-Record.

ENGINEERING EXECUTIVE, Administrator, Manager-registered professional engineer; M.S. in Civil Engineering; 41; married; 17 years experience including 10 with present employer in permanent executive position handling large design, construction, maintenance and operation organization. Desires new permanent connection South, Midwest, West. PW-9990, Engineering News-Record.

YOUNG MAN desires foreign position. Degree B.S. in C.E., 3½ years experience in geophysics, including work in Peru, Egypt. Would consider position involving extensive traveling. Twenty-seven, married, one child. PW-1084, Engineering News-Record.

POSITION AS Rigger or Iron worker foreman wanted . . . 10 yrs. experience as foreman . . . Will go anywhere . . . best of references. PW-1083, Engineering News-Record.

(Continued on opposite page)

POSITIONS WANTED
(Continued from opposite page)

CHIEF ESTIMATOR or Contractors Manager. 20 years with large and moderate size General Contracting firms on buildings, waterworks and heavy construction. Experience covers bidding and negotiating contracts also buying, organizing and managing construction projects. Available on short notice. Interested in straight salary, salary and bonus or partnership. PW-9984, Engineering News-Record.

CHIEF DRAFTSMAN Structural desires connection small progressive shop. "Sweat" shop and fabricating shop experience. Good organizer. PW-9983, Engineering News-Record.

CIVIL ENGINEER—20 years experience in layout and supervision of construction of industrial plants, commercial buildings, highways and bridges. Free to travel. Available immediately. PW-1008, Engineering News-Record.

CONSTRUCTION ENGINEER—Fifteen years experience, heavy construction, refinery and power plant work, United States and South America. Speak construction Spanish. Interested in foreign work only. Any country. Available now. PW-1017, Engineering News-Record.

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1—2-cu. yd. Drag Scraper Bucket of ½" Plate, comparable to a Sauermann Bucket in design	Good	$580.00
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2 lgths.—18" I. D. 8-ply Rubber Water Hose, wire reinforced, 50-lbs. maximum pressure. Overall lgth. 9' 10". Capable of 20-degree bend and equipped with built-in nipples and welded flanges, having 16 holes for 1¼" bolts on 22¾" dia. bolt circle.	Never used	634.30 ea. lgth.
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1—Pump Aurora Model AD-2, Centrifugal, S/N 22838, with 4" suction and 3" discharge, direct connected to 76 HP Chrysler Gasoline Engine #3941, base mounted. For intermittent duty, capacity 4380 GPM at 300-ft. head at 2400 RPM. For continuous duty, capacity 400 GPM at 220 ft., head at 2000 RPM	Built Feb. 1945 Used 100 hours	485.00
1—Pump, Houston Foundry Co., with 12" suction and 10" discharge, with DI7000 Cat. Engine, #9J5529SP Engine on skids and has clutch and 10 V belt and pulley	Good	7,545.00
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	Condition	Original Cost
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1 roll—4"x4"—#4/#4, 214'x60"	Fair	6.29C sq.ft.
3 roll—6"x6"—#4/#4m ea. 150'x60"	Fair	6.83C sq.ft.
9 roll—6"x6"—#6/#6, a. 150'x60"	Fair	3.02C sq.ft.
1 roll—6"x6"—#6/#6, 81'x60"	Fair	3.02C sq.ft.
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1—Ingersoll Rand Model FM2 Wagon Drill, complete with X71 Drifter and mounted on 3 rubber tired wheels, s/n 8313, Mfd. 1947	Used 3 mos.	1,758.37
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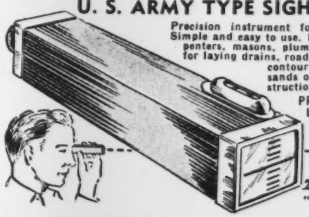

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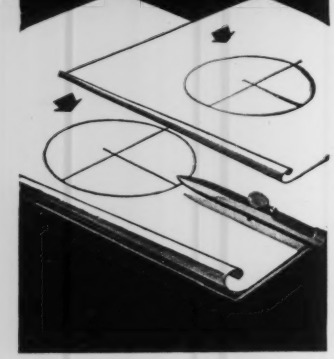

● The renown of Imperial as the finest in Tracing Cloth goes back well over half a century. Draftsmen all over the world prefer it for the uniformity of its high transparency and ink-taking surface and the superb quality of its cloth foundation.

Imperial takes erasures readily, without damage. It gives sharp contrasting prints of even the finest lines. Drawings made on Imperial over fifty years ago are still as good as ever, neither brittle nor opaque.

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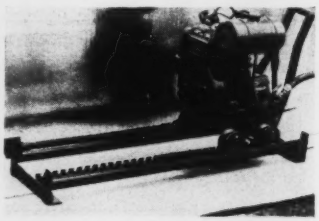
Four-Wheel Scrapers

Improved scrapers are available in five models ranging in capacity from 7.6 yd. to 28 yd. Digging and loading are positive with a heavy-duty reversible and replaceable cutting and extension-cutting edges. Draft point is located aft of the cutting edge to simplify loading. Positive roll-out ejection is provided by the rear apron moving up and forward in one operation. Designed for operation in conjunction with Allis-Chalmers tractors. — Gar Wood Industries, Inc., Findlay Division, Findlay, Ohio.

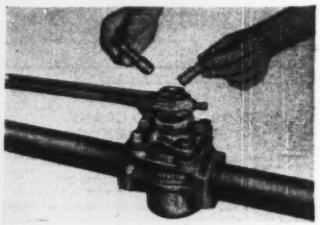


Earth-Boring Machine

Earthworm boring machines permit laying pipe line up to 3-in. in dia., and up to 150 ft. in length without breaking through the surface. In operation, water is forced through the drill stem as a lubricant and to wash back the cuttings. Three types of bits are available to work in all types of soil.—Lube Jack Co., 1415 Fourteenth St., Santa Monica, Calif.

Flameproofed Canvas

Flamproof and waterproof-treated canvas meets Federal Specification CCC-D-746. FlameZel-treated canvas, when subjected to the flame of a blow torch for several minutes, showed that flames and other incendiary action were limited to the immediate area heated by the flame with no spreading of flame or glow. An additional factor was the absence of smoldering immediately after the torch was removed. Under development for several years, FlamZel is produced entirely from domestic chemical ingredients. — H. Wenzel Tent & Duck Co., 1035 Paul, St. Louis, Mo.



Energizable Valve Lubricant

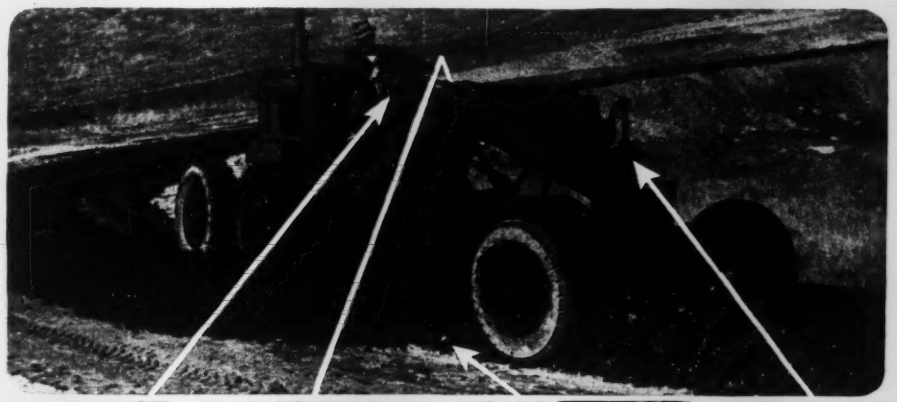
Compressible lubricant, available in bulk or stick form, allows automatic lubrication of pressurized plug valves of the Nordstrom type. Compressing this plastic lubricant creates an "energized" condition which will automatically feed lubricant to seal seating surfaces and fill voids in event of a leak. It is re-energized by adding more lubricant or by turning the lubricating-screw. The Hypermatic lubricant performs in a temperature range of 250-deg. F. Advantages claimed are: reduction of frequency of valve lubrication; valves are kept in state of 100-percent lubrication; and valves are maintained in operable condition without first stopping to re-lubricate.—Nordstrom Valve Division, Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa.

Handy Hoist

Completely new and ingenious methods of applying modern engineering principles of counter-balancing and

(Continued on page 90)

Easy does it – with ADAMS



1 Positive Mechanical Control System Provides Fast, Accurate Blade Adjustments.

2 Push-Button Starting From Cab —Assures Quick, Easy Starting In All Weather.

3 Good Visibility Gives Operator Always Clear View of Blade and Work.

4 Efficient Steering Gear and Improved Front Axle Design Makes Steering Easy.

Easy operation in a motor grader involves both ease of physical effort and ability of operator to get blade adjustments wanted—quickly, positively—and then being able clearly to see work in progress. That's why the easy operating advantages of Adams Motor Graders (as shown above) are so important. Other advanced Adams features include generous blade clearances—high-arch front axle—convenient control levers—standing or seated operation. For complete information, see your local Adams dealer.

Adams

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USE PROPER STEEL STRESSES AND SPECIFY LACLEDE MULTI-RIB REINFORCING BARS

Concrete reinforcing steel design stresses of 20000 psi (f_s) are based upon old type plain bars with 40000 psi maximum yield strength . . . A safety factor of 2 at the elastic limit.

Laclede Multi-Rib Reinforcing Bars designed for high anchorage* are produced in steel grades with more than 60000 psi yield strength. Retaining the elastic limit safety factor of 2, a design stress with Multi-Rib high strength reinforcing of *30000 psi is justified.*

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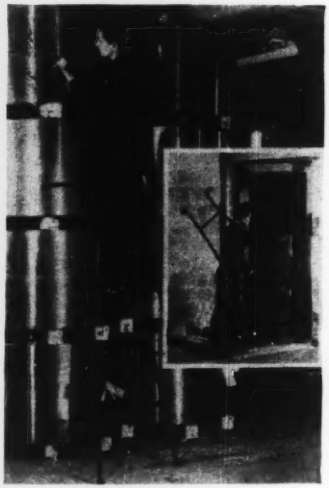
cradle boom structural design are being employed so that lifting, loading, unloading or moving bulky, heavy equipment or supplies is accomplished faster and more economically. Operating off a power take-off, the CMC "Cradle Boom" Handi-Hoist lifts up to three tons, depending on the weight of the prime mover which is utilized as a counter balance. Complete application diversity brings the hoist to the most inaccessible job.—CONSTRUCTION MACHINERY CO., WATERLOO, IOWA.



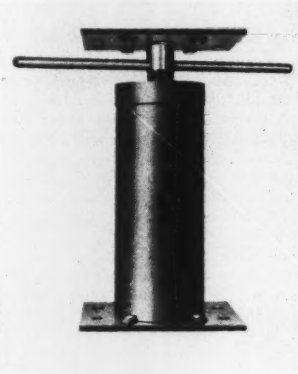
Utility Ladder

This ladder's side rails are curved at the top to hold it out from the supporting surface. The user can climb easier and balance better. The curved ends can also be rested on top of any object or hooked over places where ordinary ladders cannot be used. Rubber pads on the top and bottom of the outwardly-flared rails grip solidly on flat, curved or irregular surfaces to make the ladder safe and usable anywhere. Inexpensive and made of lightweight tubular steel, welded securely at all joints and finished in wear-resisting lacquer, the ladder stands 6 ft. high, but weighs only 12 lb.—PROFESSIONAL MFG. CO., 333 S. PEORIA ST., CHICAGO 7, ILL.

Fittings for Transite Pipe

Pipe fittings for use with Class 150 Transite pipe have been placed on the market recently under the name Tifco RR Fittings. These fittings are said to be easily installed and require no lead, oakum or other calking compounds. They continue the flexible joint principle throughout the system, thus further reducing danger of pipe breakage due to settling. Made of high-test gray cast iron, the fittings

have full AWWA Class D wall thickness and weigh 40 percent less than comparable short-pattern calk-joint fittings.—THE INDEPENDENT FITTING CO., 2241 N.W. YORK ST., PORTLAND 10, ORE.

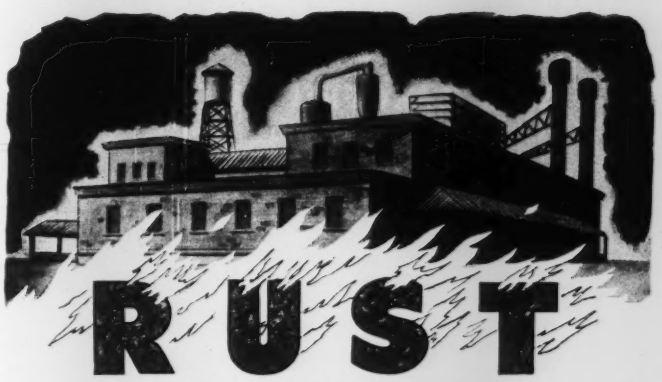


Adjustable Basement Post

Adjustable 4-inch tubular-steel basement post provides a constant-diameter column for the full height of the post, but allows for an adjustment of 4 inches through the jack-screw assembly. This assembly may be positioned at the top or bottom of the columns. Post permits builders to set heavy-duty basement posts without special cutting of pipe or arranging shoring while setting the post. Adjustment feature enables builders to keep columns tight during all phases of construction. The steel columns are available in standard heights of 6 feet 4 inches, 6 feet 10 inches, and 7 feet 4 inches, plus 4-inch jack adjustment. Tested strength of the post is said to exceed 50,000 pounds. The column may be locked permanently against tampering or loosening.—HOLM'S MFG. CO., OF OHIO, 103 N. MAIN ST., AKRON, OHIO.

Asphalt Ductility Tester

Can be used for testing all types of bituminous paving and roofing materials in accordance with ASTM specification D-113. Features the use of one temperature-control knob, one lever for pull speed selection, and one lever for start-stop of carriage. The machine incorporates automatic control of bath temperatures from 32 to 100-deg. F., and holds a set temperature within plus or minus 0.5 deg. The Vari-Temp apparatus has three pulling speeds of 1/2, 1, and 5 cm. per min. Three samples can be tested simultaneously, and a large storage compartment has space for conditioning 8 other samples.—PRECISION SCIENTIFIC CO., 3737 W. CORTLAND ST., CHICAGO 47, ILL.



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THAT IS COSTLY TO YOU

Where there is metal, rust is a constant threat. Unless all rust-producing conditions are fully checked by adequate protection, much of your property will "burn away" slowly—but as surely—as if consumed by fire. Stacks, tanks, metal roofs, structural steel, machinery, equipment and hundreds of other items are subject to destruction by this industrial scourge. *The faster rust gets in its deadly work, the sooner costly replacements are required.*

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It's a proved product (an exclusive formula) that gives long-lasting protection. Rust-Oleum coats metal with a tough pliable film that dries to a hard, firm finish. It's a rust preventive that's decorative, too. Rust-Oleum defies rain, snow, dampness, fumes, ordinary weathering and other destructive elements. Applied to metal where rust has already started, Rust-Oleum *saves it from further damage.* You don't have to remove all the rust. Available in aluminum and all colors, including white.

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Manufacturers' Publications

Framing Anchors—Bulletin explains application of Trip-L-Grip framing anchors in light wood frame construction. Specification Sheet No. 1 illustrates the application of the anchors in attaching joists to headers and headers to trimmers. It identifies the anchor most suitable for each location and shows how it should be installed. The Trip-L-Grip anchors eliminate ledger strips, notching, and toe nailing.—Timber Engineering Co., 1319 Eighteenth St., N. W., Washington 6, D. C.

Glass Blocks—Booklet contains general and technical data on glass blocks for use in commercial, industrial, and public structures. By dividing glass block patterns into decorative and functional groups, and elaborating upon the specific advantages of each, Catalog 81700 makes it easier to select the correct pattern for the job requirements. The booklet is 40 pages in length.—Pittsburgh Corning Corp., 307 Fourth Ave., Pittsburgh 22, Pa.

Pipe Insulation—Complete information on Kaylo pipe insulation is presented in 4-page folder. In addition to illustrations and physical data about the product, the folder lists standard sizes and thicknesses, recommended thickness for various pipe sizes and temperatures, heat losses, efficiencies, and surface temperatures. The folder also explains how the simplified dimension standards of Kaylo pipe insulation make it possible to build up multiple layers of insulation, and thus reduce inventory problems.—Owens-Illinois Glass Co., Kaylo Division, Box 1035, Toledo 1, Ohio.

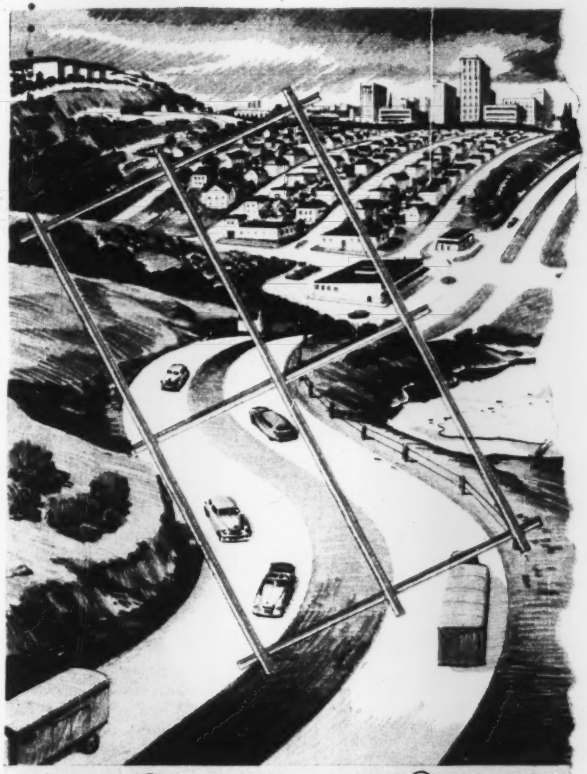
Variable-Speed Motors—Alternating-current motors with infinitely adjustable speeds are described in 12-p. bulletin. Graphs illustrate typical eddy current clutch curves, power factor performance, and load performance. Bulletin 611-D is replete with photographs showing applications of the Ajusto-Spede motors.—The Louis Allis Co., 427 E. Stewart, Milwaukee 7, Wis.

Corrosion-Resistant Coatings—A 4-page folder is available to anyone interested in successfully combatting cor-

(Continued on page 94)

. . . . . Protect the roads against the loads

buy American Welded Wire Fabric



As the wheel load approaches an open crack in plain pavement, one slab end carries the entire load. As the wheel load approaches the closed crack in pavement reinforced with American Welded Wire Fabric, both slab ends, instead of one, carry the load, preventing damage to the slab and to the subgrade.

Cross country roads and city streets are constantly being pounded by heavier loads, in bigger trucks, traveling at higher speeds. That they stand up so well is due to the fact that practically all concrete traffic arteries are reinforced, most of them with American Welded Wire Fabric.

This continuous mat of metal—with its many small, closely spaced strands of high yield-point, cold drawn steel—reinforces the road slab evenly, from edge to edge and from end to end, against stresses and strains in all directions. Thus the rate of cracking is reduced, and such cracks as do occur are held tightly closed, preventing progressive damage to the slab and the sub-grade.

Many years of practical service—in many thousands of miles of concrete highways and city streets—and tests of sample roads to the point of destruction, have proved the definite superiority of American Welded Wire Fabric reinforced pavements over other types. It is economical, too, for you use less steel, less concrete, to form a slab of comparable strength; American Welded Wire Fabric is so easily handled, so quickly laid, that you also save on construction time and labor cost.

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USS **AMERICAN WELDED WIRE FABRIC**

reinforcement

UNITED STATES STEEL

By removing mud, muck and grease from your construction equipment with Hypressure Jenny, you can make ordinary service repairs right on-the-job and save the many profitable working hours you would otherwise lose "shopping" your equipment.

Hypressure Jenny's blast of steam, hot water and cleaning compound, generated in less than a minute from a cold start, instantly loosens and flushes away mud and grease, permitting your mechanics to work unhindered . . . uncovers oil and grease connections for proper lubrication . . . reveals damaged or worn parts for repair before costly service failures occur.

Hypressure Jenny will save as much as 40% of your mechanics' time—time they waste wiping tools and machinery. Hypressure Jenny cuts your cleaning bill too, by cleaning 10 times faster and more effectively than by hand methods.

Let us show you through a free survey how much Hypressure Jenny can save you in time, labor and money Write for information—today!

HYPRESSURE JENNY DIVISION
HOMESTEAD VALVE MANUFACTURING COMPANY
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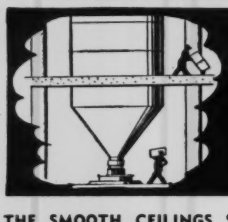

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THE SMOOTH CEILINGS SYSTEM of flat slab construction proved ideal for the Archer Daniels Midland Co. installation.

A battery of three steel tanks 30 ft. high, 10 ft. in diameter, weighing 100,000 lbs. each and extending through the third floor, are supported only by a flange around each tank . . . the entire load carried by the third floor!

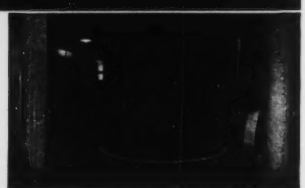
There are no dust catching, space consuming posts under the tanks which provides a free space for conveyors or other operations that need plenty of head room.

There is a row of heavy machines on one side of the tanks and a battery of 3 units weighing about 95,000 lbs. each on the other.

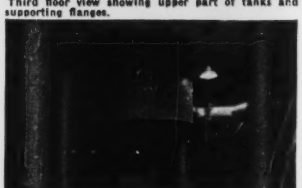
The entire load of the tanks and machines is supported only by the Smooth Ceilings System of flat slab construction without beams, caps or drop panels.

For more information on this Archer Daniels Midland Co. installation and complete data on the Smooth Ceilings System—

WRITE FOR NEW FREE BULLETIN NOW!



Third floor view showing upper part of tanks and supporting flanges.



Second floor view showing lower part of tanks and head room. Note the absence of flared column heads, beams and drop panels.

SMOOTH CEILINGS SYSTEM
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rosion of metal, wood, stone, brick and concrete structures and equipment, due to atmospheric and chemical action. The Perma-Skin system is applicable to a wide range of industries, including structural installations and machinery and equipment of almost every type. It represents years of research in vinyl resins.—DENNIS CHEMICAL CO., 2701 PAPIN ST., ST. LOUIS 3, MO.

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Oil Filters—Oil filters for use in construction equipment, trucks, and engines of all types are described in catalogs issued by Winslow. Feature of the bulletins is a list of seven reasons for using these filters, including remove acids, stop moisture, trap abrasives, free flow, and long life for the engine. The bulletins also contain listings of special filters for specific service requirements.—WINSLOW ENGINEERING CO., 4069 HOLLIS ST., OAKLAND 8, CALIF.

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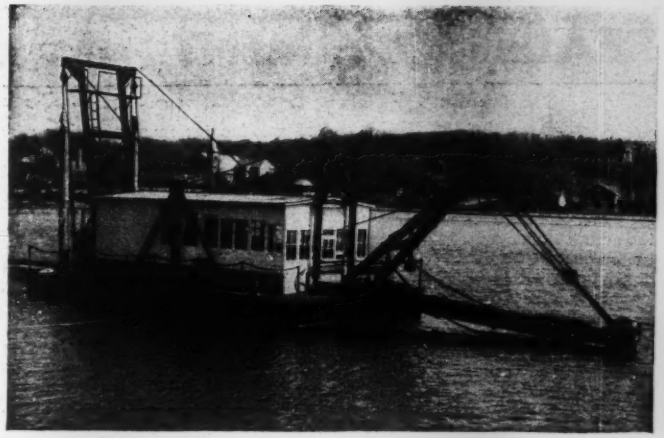

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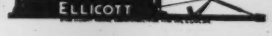

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READER COMMENT

Akron Bridge

Sir: It is with great interest that I read John B. Scalzi's article about the Akron High Level Bridge, ENR Aug. 25, 1949, p. 18. It is quite likely that the author is unaware of the fact that the original design of this bridge, the determination of the various sections to present a pleasing architectural answer, the determination of the stresses, were done by myself, former chief structural engineer for Wilbur Watson and Associates. With all due regard to the work done by my friend, S. O. Frosmark, my successor, and his engineers, I am sure that in all fairness he would be the first one to give credit where credit is due.

GEORGE E. SCHUMANN
Chief Design Engineer
Kaiser Engineers, Inc.
Oakland, California

Missouri's Road Referendum

Sir: On page 26 of the August 4, 1949 issue you have a news item entitled "Oil Men Move to Void Missouri Gasoline Tax".

It gives the impression that the referendum movement to kill the additional two cents per gallon gasoline tax in Missouri was because the oil men were against it.

The reason that many of our citizens, favorable to an increase in the gasoline tax here in Missouri, were against this particular bill, was as follows:

Of the two cents additional to the present two cent gasoline tax, one cent is allocated to federal aid highways, the other cent to less than standard rural roads. Nothing is given to federal aid highways in cities of 5,000 population or more. You can readily realize that with more than 50 percent of this increased gasoline tax being produced through the automobiles and trucks in cities of 5,000 population and over, it is unfair that cities should be contributing most of the funds without getting one penny in return.

As a former highway commissioner of Missouri, I am in favor of this referendum, and hope that the additional tax will be defeated. If the state legislature can designate this two cents to be raised by all of our citizens and allocated only to highways outside of our cities of 5,000 population and more, then future legislators can further restrict the use of gasoline tax money as they may desire.

Your news item did not state that other legislation was also pending which would put the chief engineer of the Missouri State Highway Department in a position of not being able to select his own personnel and at the same time report to a non-engineer appointee of the governor's.

Many Democrats and Republicans have combined in the past to keep our highway department engineering personnel on a merit basis and not subject to purely political control. That is why many of both parties now want to submit to the people of Missouri by referendum this latest attempt to make a political football out of our state highway department and the allocation of the gasoline tax.

ROBERT B. BROOKS
Consulting Engineer
St. Louis, Mo.

Legal Interpretations

Sir: In your editorial in the issue of June 30, 1949, on page 7 under the caption of "The Return to Sanity," you discuss the case of J. A. Jones Construction Co., and interpret the ruling in that case too broadly.

I believe that you have given too much effect to the case since the issue in the case is rather narrow.

Reviewing the full text of that case (Selby et al v. J. A. Jones Const. Co., No. 10788, May 27, 1949, 6th Dist. Cinn. U. S. Circuit Court of Appeals), you will find that the decision was based on the finding that munitions are not articles of commerce and hence labor engaged thereon is not engaged in interstate commerce. Pertinent extracts of the cases which follow, indicate this clearly:

"Materials to be processed by the operating company were transported to Oak Ridge, Tenn., from points beyond the State and after they had been processed were sent to destinations beyond the State. These matrials before, during and after processing, remained at all times the property of the United States. The movement of the materials into the State and of the processed materials beyond the State were under the supervision and control of the Army and were at no time in the custody of a common carrier. All of the activities at Oak Ridge engaged in by appellants, appellee, the operating company and the Army, had as their legitimate object the manufacture and completion of the atomic bomb."

"The District Court held that the appellants were not 'engaged in commerce or in the production of goods for commerce . . .,' and we concur. Under its contract with the United States, appellee was engaged in the construction, remodeling and modification of buildings and other structures to be used in carrying on research and development by the Army Corps of Engineers. The bomb was the objective. Appellants were engaged either directly or indirectly in such activities and in no other."

"We are dealing with an intensely practical question, as well as an important one, and we cannot think that the bomb was an article of commerce or that the processing of materials used in its development was the equivalent of production of goods for commerce."

I believe it still to be the law as reported in other cases that workers engaged on new construction are not engaged in interstate commerce but workers engaged on alterations or additions to plants which are manufacturing articles in interstate commerce are engaged in interstate commerce and therefore subject to the Fair Labor Standards Act.

Since dictating the above, the decision in Cooper v. Rust Engineering Co. (U.S.D.C.W.K. Nos. 326, 374) was reported. There, again, it was held that munitions are not articles of commerce and that workers engaged in new construction are not engaged in interstate commerce on the theory that the articles are used by the ultimate consumer. The concluding paragraph in the case is intriguing:

"We may recognize the fact that eventually the Commerce Clause of the Constitution, article 1, Sec. 8, Cl. 3, will be held to include almost every conceivable transaction since means of transportation, good roads and methods of communication steadily dim the imaginary line between states of the Union. Be this for good or ill, I believe it is a matter that addresses itself to the legislative branch of the government and not a football for judicial philosophising. When Congress, as representatives of the people, wants to make local construction from materials, tools and supplies shipped in interstate commerce an interstate transaction it will say so. The courts can then test such law for its constitutional limitations."

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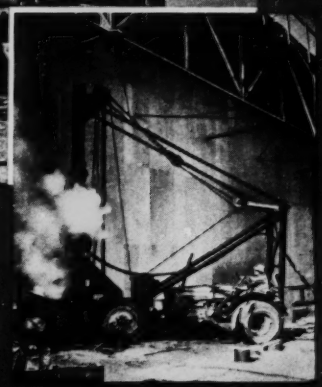

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ROADSIDE REPORT *by Bert Snooks, owner of the Texas Hauling Company, Houston, Texas, G.V.W. ratings for Ford F-7's and F-8's shown are 19,000 lbs. and 21,500 lbs. respectively.*

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- ★ Ford Super Quadrax single speed axles; two-speed axle available in Model F-8.
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